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Disproportionality and the Law of Consequential Damages: Default Theory and Cognitive Reality

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Hadley v. Baxendale's limits on a plaintiff's ability to recover consequential damages resulting from a breach of contract by now are quite familiar. Less familiar, but increasingly important, is an additional limit which focuses on the disproportionality between the contract price charged and the consequential damages which that breach induced. This limit, which has a long history, may be found in the Restatement (Second) of Contracts, and has been adopted by a good many states; moreover, the current draft of revised Article 2 of the Uniform Commercial Code contains it.

Disproportionality is largely, if not entirely, unjustifiable when looked at with the standard economic tools of default rule analysis, in particular problem-solving default analysis and information-forcing default rule analysis. Under either, Hadley by itself is more efficient than Hadley with disproportionality, at least under the great majority of plausible scenarios—those with a high-magnitude, low-probability risk.

Standard default theory, however, assumes that economic actors will behave rationally. Recent work in cognitive psychology and experimental economics suggests otherwise. Even seasoned businesspeople will frequently underestimate remote risk, which would cause them to charge too low a premium for bearing the risk. The types of risk that are most prone to underestimation—those that the promisor finds infrequent, remote, obscure, and unfamiliar—are the ones that are hence most appropriate for a disproportionality test, though one that focuses on the disparity between the size of the risk and the size of the premium charged to bear it.

I. INTRODUCTION

Hadley v. Baxendale[1] is probably the one case that every common-law lawyer may be assumed to have read.[2] Its facts—a miller sent his broken

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[1] 156 Eng. Rep. 145 (Ex. 1854).

[2] *Cf.* CHARLES L. KNAPP & NATHAN M. CRYSTAL, PROBLEMS IN CONTRACT LAW 917

millshaft for repair, and the carrier's delay cost him lost profits from the mill's closure—may be all too familiar, evoking Kingsfieldian memories of a first-year contracts class. More importantly, we still look to *Hadley* as the key to the law of consequential damages, with every law student at some point learning the two tests from *Hadley*: that a party seeking consequential damages must show either (1) that the damages flowed naturally from the breach of contract, or (2) that the damages, though not flowing naturally, were nevertheless foreseeable by the contracting parties at the time of contracting.[3] And, as usual in contract law, we can look to the Uniform Commercial Code (U.C.C.) and the Restatement (Second) of Contracts for clear statements of familiar black-letter law.

Or can we? Consider first the Restatement (Second). True, the pertinent section—number 351—starts with something like the test we know and love.[4] Its first subsection starts with an oddly negative version of a foreseeability test: "Damages are not recoverable for loss that the party in breach did not have reason to foresee as a probable result of the breach when the contract was made."[5] Of course, foreseeability is an elusive term, with its meaning dependent upon the legal context in which it is used.[6] So the next subsection defines a foreseeable loss as one that "follows from the breach (a) in the ordinary course of events, or (b) as a result of special circumstances, beyond the ordinary course of events, that the party in breach had reason to know."[7] Put together, these subsections amount to little more than *Hadley*, somewhat

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(3d ed. 1993) ("[*Hadley* is] one of the few cases that probably all students of contract law in this century have learned to remember by name, even if (as may be likely) they eventually forget what it stands for."). The only real rivals for this status are *Rylands v. Fletcher*, 3 L.R.-E. & I. App. 330 (H.L. 1868), and, at least in the United States, *Palsgraf v. Long Island R.R.*, 162 N.E. 99 (N.Y. 1928) (Cardozo, C.J.). Unaccountably, *United States* ex rel. *Mayo v. Satan and His Staff*, 54 F.R.D. 282 (W.D. Pa. 1971), is not in this number.

[3] *See Hadley*, 156 Eng. Rep. at 145.

[4] Or loathe. *See, e.g.*, Thomas A. Diamond & Howard Foss, *Consequential Damages for Commercial Loss: An Alternative to* Hadley v. Baxendale, 63 FORDHAM L. REV. 665 (1994) (criticizing the *Hadley* test and proposing an alternative); Melvin Aron Eisenberg, *The Principle of* Hadley v. Baxendale, 80 CAL. L. REV. 563 (1992) (same).

[5] RESTATEMENT (SECOND) OF CONTRACTS § 351(1) (1979).

[6] Consider, for example, the substantial difference between foreseeability in contract—the *Hadley* test—and foreseeability in tort—more or less proximate cause. *See, e.g.*, Koufos v. C. Czarnikow Ltd. [The Heron II], [1969] 1 App. Cas. 350, 385-87 (1967) (appeal taken from Eng.) (opinion of Lord Reid) (distinguishing tort foreseeability from contract); LEON GREEN, RATIONALE OF PROXIMATE CAUSE 44-55 (1927) (same); H.L.A. HART & TONY HONORÉ, CAUSATION IN THE LAW 308-24 (2d ed. 1985) (same).

[7] RESTATEMENT (SECOND) OF CONTRACTS § 351(2) (1979).

loosened, with the two familiar tests in the familiar order. But then we come to the third subsection, which may surprise even those who remember clearly their contracts class. There we get a limit on the two familiar tests: that even foreseeable consequential damages may not be recoverable if the court "concludes that in the circumstances justice so requires in order to avoid disproportionate compensation."[8] What is this? Surely nothing from *Hadley*. Nor does the comment orient us any better, with its references to the informality of dealing and the commercial nature of the parties as factors in determining whether liability should be placed on the promisor.[9]

Perplexed, we flip quickly to Article 2 of the U.C.C. There we breathe a sigh of relief, seeing something like the traditional *Hadley* rule firmly in place.[10] But, aware that Article 2 is being revised, and now wary of over-reliance on our recollections, we look up the current draft of Article 2.[11] What do we find when we see the revised text? The disproportionality language from the Restatement (Second).[12]

Now, wait just a moment. For a case so well known as *Hadley*, and a doctrine so firmly established, this review has turned up more surprises than one would have thought. After all, contracts classes usually do not reach this disproportionality analysis,[13] and the assiduous reader of law reviews—if any

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[8] RESTATEMENT (SECOND) OF CONTRACTS § 351(3) (1979). Somewhat similar provisions exist in many state civil codes, typically based on the early Field Code. *See* CAL. CIV. CODE § 3359 (West 1970) (only reasonable damages are recoverable when an obligation "appears to create a right to unconscionable and grossly oppressive damages, contrary to substantial justice"); MONT. CODE ANN. § 27-1-302 (1995) (same); N.D. CENT. CODE § 32-03-37 (1996) (same); OKLA. STAT. ANN. tit. 23, § 97 (West 1987) (same); S.D. CODIFIED LAWS § 21-1-3 (Michie 1987) (same); *see also* N.Y. CIV. CODE § 1878 (1865) (substantially similar).

[9] *See* RESTATEMENT (SECOND) OF CONTRACTS § 351 cmt. f (1979).

[10] *See* U.C.C. § 2-715(2) (1995).

[11] *See* U.C.C. § 2-806(b) (Tentative Draft, Mar. 1, 1998).

[12] *See id.*

[13] Of the roughly two dozen contracts casebooks on the market, only nine contain a case or comment that discusses disproportionality at all, and only two of these discuss it at any length. *See* JAMES F. HOGG & CARTER G. BISHOP, CONTRACTS: CASES, PROBLEMS AND MATERIALS 476–87 (1997) (containing a case directly addressing disproportionality); DAVID H. VERNON, CONTRACTS: THEORY AND PRACTICE 320–32 (2d ed. 1991) (same); *see also* JOHN P. DAWSON ET AL., CASES AND COMMENT ON CONTRACTS 68–69 (6th ed. 1993) (containing a case indirectly addressing disproportionality); ROBERT W. HAMILTON ET AL., CONTRACTS: CASES AND MATERIALS 59–62 (2d ed. 1992) (same); FRIEDRICH KESSLER ET AL., CONTRACTS: CASES AND MATERIALS 1152–57 (3d ed. 1986) (same); KNAPP & CRYSTAL, *supra* note 2, at 936 (noting the disproportionality limitation on consequential damages); EDWARD J. MURPHY ET AL., STUDIES IN CONTRACT LAW 919 (5th ed. 1997)

such person exists—would have little to recall on the issue.[14] So is disproportionality a weird academic fancy, of little interest to practical lawyers? Actually, no. Bear in mind that revised Article 2 of the U.C.C. is likely to contain disproportionality as a part of its rules on consequential damages.[15] The U.C.C. is not merely precatory; it is the law of all our common-law states.[16] Should the revision enjoy the popularity of the original, then virtually all domestic sellers of goods will have to face this rule.[17] And we find

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(same); JOHN EDWARD MURRAY, JR., CONTRACTS: CASES AND MATERIALS 669 (4th ed. 1991) (same); ARTHUR ROSETT, CONTRACT LAW AND ITS APPLICATION 326 (4th ed. 1988) (same); ROBERT S. SUMMERS & ROBERT A. HILLMAN, CONTRACT AND RELATED OBLIGATION: THEORY, DOCTRINE, AND PRACTICE 257 (3d ed. 1997) (quoting Restatement (Second) of Contracts § 351(3)).

[14] Since the Restatement (Second) came forth in 1979, only three articles have focused on disproportionality (though a number of others have mentioned it in passing). *See* William Burnett Harvey, *Discretionary Justice Under the Restatement (Second) of Contracts*, 67 CORNELL L. REV. 666 (1982); M.N. Kniffin, *A Newly Discovered Contract Unconscionability: Unconscionability of Remedy*, 63 NOTRE DAME L. REV. 247 (1988); W.F. Young, *Half Measures*, 81 COLUM. L. REV. 19 (1981).

[15] As noted earlier, the current draft contains a disproportionality provision. This provision has been in the draft for over three years. *See* U.C.C. § 2-715(c) (Tentative Draft, July 29–Aug. 5, 1994). The provision has been discussed from time to time, but there have been no proposals to limit its scope. Indeed, the one recent proposal that focuses on disproportionality would extend it to non-economic losses. *See* Letter from Charles R. Keeton, Counsel for General Electric Company, to Commissioners on Uniform State Laws 13 (Feb. 5, 1998) (on file with author).

[16] Louisiana, our bastion of civil law, has a more conventional rule in its Civil Code, though one that abandons foreseeability in cases of bad-faith breach. *See* LA. CIV. CODE ANN. arts. 1996 & 1997 (West 1987).

[17] Though generally not abroad. The United Nations Convention on Contracts for the International Sale of Goods, which the United States has ratified, contains a standard consequential damages provision. *See* CISG art. 74. The UNIDROIT Principles of International Commercial Contracts—a sort of restatement of contracts for international transactions—also uses a rule much like *Hadley*. *See* INTERNATIONAL INSTITUTE FOR THE UNIFICATION OF PRIVATE LAW, PRINCIPLES OF INTERNATIONAL COMMERCIAL CONTRACTS art. 7.4.4 (1994). Indeed, in its comments UNIDROIT specifically rejects the option of allowing a court to reduce damages with regard to the circumstances of the contract breached. *See id.* at art. 7.4.2 cmt. 1.

Looking to the domestic law of a few other nations, French law also does not provide for disproportionality as an overlay to consequential damages. *See* C. CIV. arts. 1150 & 1151 (1994). In contrast, German law makes specific performance the usual breach remedy, but allows the payment of monetary damages where specific performance would prove disproportionate. *See* §§ 249 & 251(2) BGB (1992). *See generally* G.H. TREITEL, REMEDIES FOR BREACH OF CONTRACT: A COMPARATIVE ACCOUNT 127–29, 137–38 (1988) (discussing civil law approaches). Scandinavian countries seem more inclined to limit disproportionate

disproportionality used more and more at home. Cases of this sort appear as far back as Roman times, and over two dozen times in the last two decades.

So perhaps it is time to pay some attention to disproportionality. Consequential damages for breach of contract are so important an element of contract remedies that if defendants can invoke disproportionality to have these damages reduced or effaced, they can significantly limit this major source of liability. It thus becomes important to know just when disproportionality analysis may properly be invoked. Unfortunately, there seems to be no consensus here. The writers on disproportionality tend to view it as more or less an equitable limitation on consequential damages, with all the flexibility and vagueness that this invocation of equity suggests, and the Restatement (Second) and the case law provide scarcely more guidance.

Hence this Article. Part II briefly traces the history of disproportionality analysis in contract remedies and describes the current state of the law and literature. Part III looks at disproportionality from the vantage of default rule theory; because the law of consequential damages is almost entirely composed of default rules, disproportionality is sensible to the extent that it makes a sensible default rule. As we shall see, though, the case for disproportionality under classic default rule theory is slight at best. An unconstrained rule would probably prove highly inefficient in practice, and it is hard, if not impossible, to define a class of cases for which disproportionality would prove efficient.

This rather gloomy scenario does not, however, end our analysis. Part IV employs modern cognitive psychology to provide and define a role for disproportionality as an adjunct to *Hadley*. Standard default rule theory tends to assume, as does the bulk of microeconomic analysis, that economic agents are basically rational—that they employ a coherent set of preferences for risk, and that they use these preferences consistently and efficiently, maximizing their gains to the extent possible. But, as a good many empirical studies have shown, these assumptions are often, perhaps usually, ill-founded. In fact, we carry around a good many departures from rational choice theory. For example, most people tend to undervalue remote risks; overvalue vivid data and undervalue drab data; take risks to avoid loss, but avoid them to protect gains; and many others.

These cognitive biases greatly affect our response to risk, which is at the center of much of law. Hence the recent efflorescence of legal literature

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damages. *See* JOSEPH M. LOOKOFSKY, CONSEQUENTIAL DAMAGES IN COMPARATIVE CONTEXT 187–94 (1989). Finally, English law contains no such doctrine, though disproportionality has been held relevant to determine whether a limitation of liability clause is enforceable. *See* George Mitchell (Chesterhall) Ltd. v. Finney Lock Seeds Ltd., [1983] 2 App. Cas. 803, 816–17 (H.L.); *see also infra* note 74 (American cases).

employing cognitive analysis.[18] Oddly, though, relatively little of it has dealt with its implications for contract and commercial law[19]—oddly, because much of the purpose of contracts in practice is to diminish and allocate risks of market shifts, product and labor scarcity, and the like. If, contrary to the assumptions of standard law-and-economics analysts, those who enter into contracts cannot be assumed to act rationally, in the sense of making coherent decisions to maximize wealth, perhaps the law's expectations should be adjusted. More particularly, what if parties to a contract systematically tend to undervalue remote risk—the sort of risk at the core of disproportionality analysis? Then the law of consequential damages might properly take into account the possibility that these remote risks might not have been allocated to the breaching party, even though they were foreseeable. If the parties undervalue the risk, they will not assign it a large enough risk premium. The party bearing the risk would thus not be sufficiently compensated if it had to bear the full risk. This undervaluation is the focus of Part IV, which surveys the data supporting its presence and its varying strength and endurance.

Part V considers just where disproportionality analysis might sensibly be used. It ought not be ubiquitous; its presence adds greatly to commercial uncertainty and hence commercial cost, and in any case there are a good many types of contracting parties that should be assumed to have dealt satisfactorily with remote risk. Rather, its use should largely be confined to those breachers who deal but infrequently with the risk in question, who lack substantial experience with the risk, and for whom the risk is insufficiently salient to overcome the natural tendency to underestimate remote risk. Interestingly, this result does in fact explain most modern disproportionality decisions, but runs flatly against many of the earliest such cases—including a Cardozo opinion that

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[18] *See, e.g.*, Clayton P. Gillette & James E. Krier, *Risk, Courts, and Agencies*, 138 U. PA. L. REV. 1027 (1990) (administrative law); Adam J. Hirsch, *Spendthrift Trusts and Public Policy: Economic and Cognitive Perspectives*, 73 WASH. U. L.Q. 1 (1995) (trusts and estates); Russell Korobkin & Chris Guthrie, *Psychological Barriers to Litigation Settlement: An Experimental Approach*, 93 MICH. L. REV. 107 (1994) (civil procedure); Donald C. Langevoort, *Selling Hope, Selling Risk: Some Lessons for Law from Behavioral Economics About Stockbrokers and Sophisticated Customers*, 84 CAL. L. REV. 627 (1996) (securities regulation); Edward J. McCaffery, *Cognitive Theory and Tax*, 41 UCLA L. REV. 1861 (1994) (tax).

[19] For the few exceptions, see, for example, Melvin Aron Eisenberg, *The Limits of Cognition and the Limits of Contract*, 47 STAN. L. REV. 211 (1995); Larry T. Garvin, *Adequate Assurance of Performance: Of Risk, Duress, and Cognition*, 69 U. COLO. L. REV. 71 (1998); Clayton P. Gillette, *Commercial Rationality and the Duty to Adjust Long-Term Contracts*, 69 MINN. L. REV. 521 (1985); Alan Schwartz & Louis L. Wilde, *Imperfect Information in Markets for Contract Terms: The Examples of Warranties and Security Interests*, 69 VA. L. REV. 1387 (1983).

helped trigger, with some delay, the modern explosion in disproportionality.[20]

II. DISPROPORTIONALITY—PAST AND PRESENT

A. *The Origins of Disproportionality*

Disproportionality in contract remedies goes back much further than the Restatement (Second) of Contracts, or, indeed, than the common law. Even in Roman law one sees antecedents of the modern approach. To be sure, the Roman law of consequential damages is itself not clear, perhaps including a foreseeability test.[21] Beyond this limit, though, is some modest evidence of early disproportionality. One comment in the *Digest of Justinian* concerns damages claimed by a buyer with respect to the manumission of a slave that he had purchased and trained. The buyer sought damages both for the price of the slave—direct damages—and for the cost of training—consequential damages. The commentator thought that the normal rule, which allowed an action for the full value of the slave, was reasonable, but that the rule would be unfair if the price was greatly exceeded by the slave's worth (if, for instance, the slave had been trained as a charioteer or a dancer).[22] Then, said another commentator, the better rule would be limiting damages to twice the contract price,[23] a rule which seems to have been in effect in later Roman law.[24] Roman law thus seems to have recognized the risk that consequential damages might be disproportionate, and seems as well to have had a means, however crude, of limiting these damages.

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[20] *See* Kerr S.S. Co. v. Radio Corp. of Am., 157 N.E. 140 (N.Y. 1927) (Cardozo, C.J.).

[21] *See, e.g.*, REINHARD ZIMMERMANN, THE LAW OF OBLIGATIONS 826-33 (1995); FRANCIS DE ZULUETA, THE ROMAN LAW OF SALE 41 (1945). *Compare* DIG. 19.1.13.pr. (Ulpian, Edict 32) (full consequential damages), DIG. 19.1.13.13 (Ulpian, Edict 32) (same), DIG. 21.2.8 (Julian, Digest 15) (same), DIG. 21.2.60 (Javolenus, Plautius 2) (same), *and* DIG. 21.2.70 (Paul, Questions 5) (same), *with* DIG. 19.1.21.3 (Paul, Edict 33) (lost profits not included). *See also, e.g.*, W.W. BUCKLAND, A TEXT-BOOK OF ROMAN LAW 494 (Peter Stein ed., 3d ed. 1966) (canvassing authority; Roman law probably had some limits on consequential damages, but unclear just what); *cf.* DIG. 19.1.1.pr. (Ulpian, Sabenius 28) (measure of damages for breach of sales contract sometimes exceeds price).

[22] *See* DIG. 19.1.43 (Paul, Questions 5).

[23] *See* DIG. 19.1.44 (Africanus, Questions 8).

[24] *See* CODE JUST. 7.47.1 (Justinian 530); *see also, e.g.*, DE ZULUETA, *supra* note 21, at 45; J.A.C. THOMAS, TEXTBOOK OF ROMAN LAW 285-86 (1976). Note that this rule applied to breach of contract actions, but not to less certain actions, presumably including actions in tort. So much for early attempts at tort reform.

The common law was slow to recognize disproportionality as a limit on consequential damages—but then, it was also slow to recognize foreseeability as a limit on consequential damages.[25] In this area, as in others pertaining to contract, Roman law had little direct effect.[26] Rather, common-law decisions before *Hadley* put few structural limits on consequential damages. Instead, they left the general question of damages for breach of contract to the jury, largely without constraints.[27] Any existing limits tended to look more like those in the modern law of tort than the modern law of contract. Some courts, for example, required a showing of proximate cause for a potential item of damage to be recoverable.[28] Others required a significant degree of certainty, which tended to eliminate the more speculative sort of consequential damages.[29] Still others used

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[25] For that matter, it was slow to award damages for breach, not fully developing this right until the thirteenth century. *See, e.g.*, 3 W.S. HOLDSWORTH, A HISTORY OF ENGLISH LAW 417–28 (3d ed. 1927); George T. Washington, *Damages in Contract at Common Law* (pt. 1), 47 L.Q. REV. 345, 345 (1931). Once it did, it was slow to recognize the existence of consequential damages at all. As one early damages treatise put it, "the law does not aim at complete compensation for the injury sustained . . . [i]n other words, the law refuses to take into consideration any damages remotely or consequentially resulting from the act complained of." THEODORE SEDGWICK, A TREATISE ON THE MEASURE OF DAMAGES 63–64 (photo. reprint 1972) (1847).

[26] *See, e.g.*, 3 HOLDSWORTH, *supra* note 25, at 412. Roman law did, however, influence the common law of contract damages indirectly, through the intermediary of civil law (primarily French). *See infra* note 33 and accompanying text.

[27] Thus, for example, leading treatises of the time on contracts paid little attention to damages, typically saying only, as did one, that "it is, in general, entirely the province of the jury to assess the amount, with reference to all the circumstances of the case." JOSEPH CHITTY, A PRACTICAL TREATISE ON THE LAW OF CONTRACTS 343 (3d Am. ed., Philadelphia, Grigg & Elliot 1834); *see also, e.g.*, George T. Washington, *Damages in Contract at Common Law* (pt. 2), 48 L.Q. REV. 90, 90 (1932) ("When one looks back over the older law of damages, the word 'discretion' seems to provide the key to its philosophy."). Professor Horwitz similarly found that juries awarded damages with minimal constraint until the early nineteenth century saw the advent of the expectation measure. *See* MORTON J. HORWITZ, THE TRANSFORMATION OF AMERICAN LAW, 1780–1860 at 166–67, 174–77 (1977). *But see* A.W.B. Simpson, *The Horwitz Thesis and the History of Contracts*, 46 U. CHI. L. REV. 533, 547–61 (1979) (criticizing Horwitz and arguing that expectation damages had long since arisen).

[28] *See, e.g.*, Armstrong v. Percy, 5 Wend. 535, 538 (N.Y. Sup. Ct. 1832); *see also, e.g.*, SEDGWICK, *supra* note 25, at 74–75 (proximate cause as requirement).

[29] To some extent, this fear of speculation has survived in modern law. At the lowest level, the plaintiff bears the burden of proof, so wholly speculative claims for damages will fail. Beyond that, though, a few jurisdictions retain the old rule that new businesses may not claim lost profits as consequential damages in actions for breach, because they have no record of past profits that would support such an award. *See, e.g.*, Molly Pitcher Canning Co. v.

language vaguely redolent of foreseeability, though never quite arising to the level of *Hadley*.[30] As Richard Danzig has observed, though, the general approach taken by common-law courts on the eve of *Hadley* gave quite substantial leeway to the jury.[31]

And then, of course, came *Hadley*. Others have related its history at considerable and entertaining length, so we need not recount it here.[32] For our purposes, it is sufficient to note that the opinion marked a change in the common law from relatively unconstrained jury awards of consequential damages to awards constrained by foreseeability. The idea of foreseeability was not entirely foreign to common lawyers, of course, though it was at least unusual. But the court did not refer to any common-law cases when setting forth this principle. Rather, it relied upon civilian authority—in particular, the French Civil Code, which carried forward the Roman use of foreseeability.[33]

Central of Ga. Ry., 253 S.E.2d 392, 396–97 (Ga. Ct. App. 1979). This rule was once standard, but has since become very much a minority position; instead, most modern courts now allow a new firm to seek lost profits, using the best evidence it can (for instance, the profits of similar businesses or expert projections). *See, e.g.*, Fera v. Village Plaza, Inc., 242 N.W.2d 372, 376 (Mich. 1976). *See generally* 1 ROBERT L. DUNN, RECOVERY OF DAMAGES FOR LOST PROFITS § 4.2 (4th ed. 1992 & Supp. 1997) (collecting cases).

[30] *See, e.g.*, McAlpin v. Lee, 12 Conn. 129, 132–33 (1837) (holding no recovery for consequential damages unless the loss naturally resulted from the breach); Masterton & Smith v. Mayor of Brooklyn, 7 Hill 61, 68 (N.Y. Sup. Ct. 1845); *see also, e.g.*, SEDGWICK, *supra* note 25, at 69–72, 76, 79–88.

[31] *See* Richard Danzig, Hadley v. Baxendale*: A Study in the Industrialization of the Law*, 4 J. LEGAL STUD. 249, 255 (1975); *see also, e.g.*, Waters v. Towers, 155 Eng. Rep. 1404, 1405 (Ex. 1853) (placing determination of damages due to breach of contract with jury); Black v. Baxendale, 154 Eng. Rep. 174, 175 (Ex. 1847) ("It is not a question for the Judge, but for the jury, to decide what are reasonable expenses.").

[32] *See, e.g.*, Danzig, *supra* note 31, at 255. One of the most interesting facts about *Hadley* is its close tie to *Black*, a case it quickly and decisively reversed. The defendant, of course, was the same. In addition, Baron Alderson, the author of the opinion in *Hadley*, was one of the judges in *Black*, as was Baron Parke, another of the *Hadley* judges. The third *Hadley* judge, Baron Martin, was also present, though not yet a judge; he was counsel for Baxendale. *See id.* at 256. I suppose it is obvious that the Canons of Judicial Ethics had not yet been issued.

[33] *See Hadley*, 156 Eng. Rep. at 147–48 (quoting C. CIV. liv. iii, tit. iii, § 1150 (1994)) ("The debtor is liable only for the damages foreseen, or which might have been foreseen."); 1 ROBERT JOSEPH POTHIER, A TREATISE ON THE LAW OF OBLIGATIONS 81–86 (William David Evans ed., Philadelphia, Robert H. Small 1826) (leading French treatise on contracts; lays out consequential damages rule based on contemplation of the parties); ZIMMERMANN, *supra* note 21, at 829–30. This civilian influence on the common law was hardly uncommon, as others have observed. *See, e.g.*, A.W.B. Simpson, *Innovation in Nineteenth Century Contract Law*, 91 L.Q. REV. 247, 255–57 (1975).

The *Hadley* rule was adopted rapidly in the United States, with courts flocking to it within a decade or two of its arrival.[34] Importantly, one reason advanced for adopting *Hadley* was its effect on disproportionate damages. A good illustration is *Fleming v. Beck*,[35] in which the plaintiff claimed lost profits as damages for breach of a contract to dress millstones.[36] The court rebuffed the plaintiff, in large part because it feared the effect of holding the supplier of a small part of a mill liable for the losses if the mill were idle.[37] It thought the *Hadley* test well adapted to keeping damages within reasonable bounds, imposing on the breaching party "the proportion of [the loss] that a proper view of his acts and the attending circumstances would dictate."[38] In much the same vein, another court, in applying the *Hadley* rule, observed that the effect of allowing unlimited consequential damages "would often be to impose a liability wholly disproportionate to the nature of the act or service which a party had bound himself to perform and to the compensation paid and received therefor."[39]

Not long after *Hadley*'s advent, though, some courts sought to restrict further the scope of consequential damages. A particularly notorious approach was the so-called tacit agreement test, most famously put forth by Justice Holmes in *Globe Refining Co. v. Landa Cotton Oil Co.*[40] There Holmes held that "mere notice to a seller of some interest or probable action of the buyer is not enough necessarily and as a matter of law to charge the seller with special damage on that account if he fails to deliver the goods."[41] This contradicts what

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[34] *See, e.g.*, United States Tel. Co. v. Gildersleve, 29 Md. 232, 249 (1868) ("This is the rule furnished by the case of *Hadley v. Baxendale* . . . which has been recognized . . . as being in all respects the most correct and precise."); Squire v. Western Union Tel. Co., 98 Mass. 232, 237–38 (1867) ("[A] party can be held liable for a breach of contract only for such damages as are the natural or necessary, and the immediate and direct results of the breach."); Messmore v. New York Shot & Lead Co., 40 N.Y. 422, 427 (1869) ("[T]he party injured by a breach of a contract, is entitled to recover all his damages . . . as might naturally be expected to follow the breach.").

[35] 48 Pa. 309 (1864).

[36] *See id.* at 312.

[37] *See id.* at 313.

[38] *Id. Fleming* thus stands for *Hadley* as a means of combatting disproportionality, rather than for disproportionality as a limit on *Hadley*, as has been argued. *See* Kniffin, *supra* note 14, at 261–62.

[39] *Squire*, 98 Mass. at 237; *see also, e.g.*, Rochester Lantern Co. v. Stiles & Parker Press Co., 31 N.E. 1018, 1021–22 (N.Y. 1892) (applying the second part of *Hadley*; pointing to disproportionality as a justification).

[40] 190 U.S. 540 (1903).

[41] *Id.* at 545.

we have come to think of as the second part of *Hadley* analysis, for which notice—even mere notice—would be sufficient. Rather, held Holmes, the plaintiff needs to establish that the extent of a promisor's liability "should be worked out on terms which it fairly may be presumed he would have assented to if they had been presented to his mind."[42] Holmes drew this test from a series of English cases that followed swiftly upon *Hadley*,[43] and it soon became, for a time, a popular American rule.[44]

More directly to our point, a number of courts toyed with considering disproportionality when determining whether to award consequential damages. The cases are few enough, and scattered enough, that they are less a line than a series of collinear points (with one segment); still, they bear some attention, as the clearest predecessors to modern disproportionality doctrine. First, we examine the disconnected cases. They share a worry that the promisor might not have assumed all the potential for loss that was realized, and use disproportionality as a means of determining whether the promisor should be charged with having taken on the risk. Thus, for example, in a dispute over a breached contract to lay railroad tracks, one court denied consequential damages for a lost rebate of interest on bonds, saying that "[t]he damages insisted upon, under this rule, exceed $44,000—a sum enormously out of all proportion to the amount to be paid for the entire work."[45]

Another such case, this time involving a delay in installing boilers needed

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[42] *Id.* at 543. Indeed, this test was adopted by some courts in part for fear of disproportionate liability. *See, e.g.*, Haight v. Marin Mun. Water Dist., 277 P. 525, 527–28 (Cal. Dist. Ct. App. 1929).

[43] *See, e.g.*, Horne v. Midland Ry., 7 L.R.-C.P. 583, 591 (1872); British Columbia & Vancouver's Island Spar, Lumber, & Saw-Mill Co. v. Nettleship, 2 L.R.-C.P. 499, 509 (1868). This line was not without criticism in England—from, among others, a future Lord Chancellor. *See, e.g.*, F.E. Smith, *The Rule in* Hadley v. Baxendale, 16 L.Q. REV. 275, 284–85 (1900) (author later created Lord Birkenhead). Ultimately, English courts adhered to *Hadley* as it is now understood. *See, e.g.*, Victoria Laundry (Windsor) Ltd. v. Newman Indus. Ltd., [1949] 2 K.B. 528, 540.

[44] *See* Charles T. McCormick, *The Contemplation Rule as a Limitation Upon Damages for Breach of Contract*, 19 MINN. L. REV. 497, 511–15 (1935) (referencing cases). The rule has since been abandoned in every state save Arkansas. *See, e.g.*, U.C.C. § 2-715 cmt. 2 (1995) ("The 'tacit agreement' test for the recovery of consequential damages is rejected."); 3 E. ALLAN FARNSWORTH, FARNSWORTH ON CONTRACTS § 12.14 (1990). *But see* Morrow v. First Nat'l Bank, 550 S.W.2d 429, 431 (Ark. 1977) (reaffirming adherence to tacit agreement test). Since *Globe Refining* has not yet been overturned by the Supreme Court, it remains the law for federal contracts. *See, e.g.*, Wells Fargo Bank v. United States, 33 Fed. Cl. 233, 242–43 n.8 (1995).

[45] Snell v. Cottingham, 72 Ill. 161, 170 (1874).

to operate a mill,[46] presented a plaintiff that sought damages for lost profits resulting from the delay. The court there, worried that "the breach of a very simple contract . . . might bring ruin upon the parties failing, when no such loss was contemplated," found that "[w]here the damages claimed, as in this case, largely exceed the contract price . . . we may well question the justice of such a conclusion in the absence of a clear showing that such a result was anticipated by the parties."[47] So here disproportionality impelled the court to impose a very strict level of proof of intent, not unlike the tacit agreement test in effect.

Perhaps the most prominent of these cases is *Sullivan v. O'Connor*,[48] in which an entertainer underwent some remarkably unsuccessful rhinoplasty—unsuccessful despite the surgeon's promise that she would be more attractive.[49] The court reluctantly acknowledged the presence of a claim in contract, but elected to limit the plaintiff to her reliance damages. It reasoned that "the fee paid by the patient to the doctor for the alleged promise would usually be quite disproportionate to the putative expectancy recovery."[50] Furthermore, enforcing contracts in this context could be troublesome; while failing to do so might encourage quackery, doing so too promiscuously might encourage defensive medicine and perhaps would dissuade physicians from uttering reassuring words.[51]

Other cases could be summed up, though probably with no analytical gain.[52] It should be added, though, that disproportionality arguments did not

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[46] What is it with these mills? First *Hadley*, then *Fleming*, and now this. The mills of the Gods grind slowly . . . .

[47] McEwen v. McKinnon, 11 N.W. 828, 830 (Mich. 1882).

[48] 296 N.E.2d 183 (Mass. 1973).

[49] Instead, her nose "now had a concave line to about the midpoint, at which it became bulbous; viewed frontally, the nose from bridge to midpoint was flattened and broadened, and the two sides of the tip had lost symmetry." *Id.* at 185. Not a desirable result, unless her star turn was impersonating Ernest Borgnine. Perhaps if Doctor McGee of *Hawkins v. McGee* fame had performed Ms. Sullivan's operation, she would have had a hairy nose as well.

[50] *Id.* at 188.

[51] *See id.* at 186.

[52] *See, e.g.*, Armstrong Rubber Co. v. Griffith, 43 F.2d 689, 691 (2d Cir. 1930); Great Am. Music Mach., Inc. v. Mid-South Record Pressing Co., 393 F. Supp. 877, 885 (M.D. Tenn. 1975); Moulthrop v. Hyett, 17 So. 32, 33–34 (Ala. 1895); University Hills Beauty Acad., Inc. v. Mountain States Tel. & Tel. Co., 554 P.2d 723, 726 (Colo. Ct. App. 1976); Flug v. Craft Mfg. Co., 120 N.E.2d 666, 671 (Ill. App. Ct. 1954); Romberg v. Hughes, 26 N.W. 351, 353 (Neb. 1886); Armstrong & Latta v. City of Philadelphia, 94 A. 455, 458 (Pa. 1915); *cf.* Majors v. Kalo Labs., Inc., 407 F. Supp. 20, 22–23 (M.D. Ala. 1975) (finding limitation of liability invalid because remedy disproportionately low to consequential damages).

always overwhelm courts. At times, disproportionality, though considered relevant to whether damages were within the reasonable contemplation of the parties, was not thought conclusive.[53] One court rejected it out of hand.[54] Advocates for disproportionality thus could draw only modest strength from this part of the case law.

The closest thing to a line of cases before the Restatement (Second) of Contracts arose from contracts to send telegrams.[55] Not infrequently, the result of an errant missive was substantial loss, perhaps because of missed business opportunities or wasted expenditures. The problem was often litigated in the late nineteenth and early twentieth centuries.[56] In general, the results were predictable, given orthodox *Hadley* analysis: consequential damages would not be recoverable unless they either flowed naturally from the breach or should have been expected to fall within the contemplation of the parties.[57] For the second part of *Hadley* to be satisfied, the telegraph company would ordinarily need notice, though this requirement was often slight. A message couched in the language of business would give sufficient notice to trigger liability for consequential damages, even if the full import of the message was not thereby disclosed, as long as the probable consequences of faulty delivery were apparent.[58]

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[53] *See, e.g.*, Campfield v. Sauer, 189 F. 576, 581 (6th Cir. 1911).

[54] *See* Edward de V. Tompkins, Inc. v. City of Bridgeport, 110 A. 183, 192–93 (Conn. 1920).

[55] There is another line of sorts, though it is rather specialized. Government contractors generally are held not to be liable to members of the public for failure to provide the services contracted for, barring a contractual term that states otherwise. *See* RESTATEMENT (SECOND) OF CONTRACTS § 313(2) (1979); *see also, e.g.*, Zigas v. Superior Court, 174 Cal. Rptr. 806, 811 (Ct. App. 1981); Moch Co. v. Rensselaer Water Co., 159 N.E. 896, 897 (N.Y. 1928) (Cardozo, C.J.). The rationale is in part that the liability might prove "disproportionately burdensome in relation to the value of the promised performance." *Zigas*, 174 Cal. Rptr. at 811 n.3.

[56] Indeed, the whole area of telegraph company regulation inspired treatises which now make singularly dry reading. *See, e.g.*, S. WALTER JONES, A TREATISE ON THE LAW OF TELEGRAPH AND TELEPHONE COMPANIES (2d ed. 1916).

[57] *See, e.g.*, Squire v. Western Union Tel. Co., 98 Mass. 232, 238 (1867); Leonard v. New York, Albany & Buffalo Electro-Magnetic Tel. Co., 41 N.Y. 544, 566 (1870) (opinion of Earl, C.J.); United States Tel. Co. v. Wenger, 55 Pa. 262, 267 (1867).

[58] *See, e.g.*, Fererro v. Western Union Tel. Co., 9 App. D.C. 455, 470–71 (1896); McNeil v. Postal Tel.-Cable Co., 134 N.W. 611, 613–14 (Iowa 1912); Western Union Tel. Co. v. Sheffield, 10 S.W. 752, 754–55 (Tex. 1888). Indeed, some courts held that the mere fact of sending a coded telegram was notice of its importance, laying the carrier open to liability for consequential damages if it miscarried, though this was a minority position. *Compare* Wheelock v. Postal Tel. Cable Co., 83 N.E. 313, 316 (Mass. 1908) (finding no

By their nature, however, the telegram cases were especially prone to disproportionality reasoning. The cost of a telegram was small, but the consequential damages that could result from failure to deliver were potentially very large. It is thus unsurprising to see a number of disproportionality cases among the telegraphic array. Some addressed the issue indirectly, by stressing the low cost of the telegram and the high and often speculative damages.[59] Others were more direct. Perhaps the most important was *Kerr Steamship Co. v. Radio Corp. of America*,[60] Judge (later Justice) Cardozo's contribution to the field.

In *Kerr Steamship*, a ciphered telegram went undelivered, resulting in unladen and ultimately uncarried cargo.[61] The carriage was worth $6675.29 and the telegram cost $26.78. Cardozo, for a unanimous court, began with relatively orthodox analysis, pointing out the obscurity of the message and its consequent failure to give the telegraph company any real aid to detecting its significance.[62] In justifying the traditional rule, though, Cardozo launched into something like disproportionality. He worried about the potentially "crushing" liabilities to which the carriers could be put; as a result of these large and uncertain liabilities, they would have to raise their rates to all, even though only a few would gain.[63] The potential range of liabilities would be large: "to one the loss of freight, to another an idle factory, to another a frustrated bargain for the sale or leasing of the cargo."[64] The sender, in contrast, could easily insure against loss accurately, knowing as it did the magnitude of the potential harm.[65] *Kerr Steamship* is not, perhaps, as explicit a disproportionality case as some, but it was one of the few cases referred to in the Restatement (Second) on this issue, and the basis of one of the illustrations.[66]

By the eve of the Restatement (Second), then, disproportionality arguments

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liability), *and* Candee v. Western Union Tel. Co., 34 Wis. 471, 480–81 (1874) (same), *with* Western Union Tel. Co. v. Way, 4 So. 844, 849–50 (Ala. 1887) (finding liability), *and* Bailey v. Western Union Tel. Co., 76 A. 736, 740 (Pa. 1910) (same). *See also* JONES, *supra* note 56, at 536–38.

[59] *See, e.g.*, Western Union Tel. Co. v. R.J. Jones & Sons, 211 F.2d 479, 485 (5th Cir. 1954).

[60] 157 N.E. 140 (N.Y. 1927).

[61] *See id.* at 140–41. The ciphered message began with the sonorous "akjedudaht akfreictoj kinghorn urgpoopgwo." DAWSON ET AL., *supra* note 13, at 68.

[62] *See Kerr S.S.*, 157 N.E. at 140–42.

[63] *See id.* at 142.

[64] *Id.* at 141.

[65] *See id.* at 142.

[66] *See* RESTATEMENT (SECOND) OF CONTRACTS § 351 illus. 17 & reporter's note (1979).

had made rather modest headway. The reporters contained a handful of decisions that gave it weight, whether as a reason to adopt *Hadley* or as a limitation on *Hadley* itself, and concerns about excessive damages had otherwise encouraged some courts to restrict consequential damages further than did even *Hadley*.[67] Commentators seldom held forth on disproportionality, though those who did tended to give it at least tepid support.[68] Perhaps the leading supporter was Professor Farnsworth, who suggested that foreseeability might properly be limited where disproportion indicated that the risk had not been assumed by the promisor.[69] Professor Farnsworth was in rather a good position to ensure that his proposal might take wing: he was the reporter for the Restatement (Second) of Contracts. A convenient marriage of will and authority.

Little need be said about the origin of Restatement (Second) section 351(3). Its original draft did not mention disproportionality in the text, referring instead to a court's ability to limit damages "if it concludes that justice so requires."[70] Only in the comments did disproportionality arise, as the first-mentioned circumstance under which justice might require reducing or eliminating the consequential damages.[71] The provision was changed as a result of discussion at an American Law Institute meeting, during which some members expressed concern at the open-endedness of the black-letter text and suggested that disproportionality be brought up from the comments for the sake of clarity.[72]

B. *Modern Disproportionality*

The law of disproportionality since the Restatement (Second), though not overwhelmingly large,[73] nevertheless contains much fodder for analysis. For

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[67] A somewhat exaggerated view may be found in the American Law Institute's discussion leading up to section 351(3); in the words of the reporter, this is "a rule that you can find only a couple of cases to support explicitly and then some statements by scholars and interpretations of other cases to support implicitly." 56 A.L.I. PROCEEDINGS 338–39 (1979).

[68] *See, e.g.*, McCormick, *supra* note 44, at 511. Fuller and Perdue mention disproportionality in their classic article, but only as a matter of description. *See* L.L. Fuller & William R. Perdue, Jr., *The Reliance Interest in Contract Damages* (pts. 1 & 2), 46 YALE L.J. 52, 88, 373, 374 (1936–1937).

[69] *See* E. Allan Farnsworth, *Legal Remedies for Breach of Contract*, 70 COLUM. L. REV. 1145, 1208–10 (1970).

[70] RESTATEMENT (SECOND) OF CONTRACTS § 365(3) (Tentative Draft No. 14, 1979).

[71] *See id.* at cmt. f.

[72] *See* 56 A.L.I. PROCEEDINGS 340–49 (1979).

[73] As Professor Farnsworth, perhaps somewhat disappointedly, puts it, "this frank

the most part, the courts that have discussed the issue have chosen to follow the Restatement (Second), or have installed home-grown common-law equivalents.[74] In addition, a few states have statutes that do much of the work of section 351(3).[75] Indeed, only one court—a diversity court, loath to extend state law—has declined to apply disproportionality analysis.[76]

Courts that consider disproportionality do so in a wide range of contexts. Many of the cases arise from ordinary goods or services contracts.[77] Some involve contracts between governments and private parties, typically over contracting out government services or developing public lands.[78] An unusual

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recognition of the judicial reluctance [to impose disproportionate liability] has little explicit support in the courts." 3 FARNSWORTH, *supra* note 44, § 12.17 at 272–73.

[74] *Cf., e.g.*, Husman Constr. Co. v. Purolator Courier Corp., 832 F.2d 459, 462 (8th Cir. 1987) (validity of limitation on carrier's liability in bill of lading; otherwise would have disproportionate liability); Bernstein v. GTE Directories Corp., 631 F. Supp. 1551, 1553 (D. Nev. 1986) (validity of limitation of liability clause in contract for telephone directory listing; would have disproportionate harm if clause invalidated); Pinnacle Computer Sys., Inc. v. Ameritech Pub., Inc., 642 N.E.2d 1011, 1014–16 (Ind. Ct. App. 1994) (same); Wassenaar v. Panos, 331 N.W.2d 357, 364 (Wis. 1983) (validity of liquidated damages clause; invalid if actual damages grossly disproportionate to liquidated amount).

[75] As noted earlier, a number of state civil codes contain provisions that bar unreasonable damages. *See supra* note 8. The cases following these codes have tended to limit general damages, rather than consequential damages, though they have done so with disproportion in mind. *See, e.g.*, Kimmel v. Keefe, 88 Cal. Rptr. 47, 51–52 (Ct. App. 1970); Schmidt v. Beckelman, 9 Cal. Rptr. 736, 742 (Dist. Ct. App. 1960); Avery v. Fredericksen & Westbrook, 154 P.2d 41, 42 (Cal. Dist. Ct. App. 1944); Schneberger v. Apache Corp., 890 P.2d 847, 854 (Okla. 1994). A few cases have, however, used the provisions to limit consequential damages. *See, e.g.*, Postal Instant Press, Inc. v. Sealy, 51 Cal. Rptr. 2d 365, 372–75 (Ct. App. 1996); Breznikar v. T.J. Topper Co., 72 P.2d 895, 898–99 (Cal. Dist. Ct. App. 1937); DTS Tank Serv., Inc. v. Vanderveen, 683 P.2d 1345, 1347 (Okla. 1984).

[76] *See* Sovereign Chem. & Petroleum Prods., Inc. v. Ameropan Oil Corp., 148 F.R.D. 208, 213 (N.D. Ill. 1992). *But see* Snell v. Cottingham, 72 Ill. 161, 170 (1874) (applying disproportionality); Flug v. Craft Mfg. Co., 120 N.E.2d 666, 671 (Ill. App. Ct. 1954) (same). *Cf.* EVRA Corp. v. Swiss Bank Corp., 673 F.2d 951, 956 (7th Cir. 1982) (Posner, J.) (referring to disproportion as a means of addressing foreseeability; citing to *Snell* and *Flug*).

[77] *See, e.g.*, General Motors Corp. v. Martine, 567 A.2d 808, 811 (Conn. 1989) (sale of automobile); Perini Corp. v. Greate Bay Hotel & Casino, Inc., 610 A.2d 364, 379–82 (N.J. 1992) (construction contract); Seaman v. United States Steel Corp., 400 A.2d 90, 93 (N.J. Super. Ct. App. Div. 1979) (sale of heel plate for floating crane); Manouchehri v. Heim, 941 P.2d 978 (N.M. 1997) (sale of used X-ray machine); Cayuga Harvester, Inc. v. Allis-Chalmers Corp., 465 N.Y.S.2d 606, 613–14 (App. Div. 1983) (sale of harvesting machine).

[78] *See* All Points Towing, Inc. v. City of Glendale, 735 P.2d 145 (Ariz. Ct. App. 1987)

number deal with shipping inspections.[79] Others allege breaches of lending agreements,[80] franchise agreements,[81] proposed asset purchases,[82] and other types of contracts.[83] This range is not too dissimilar from any other random collection of contracts opinions, though obviously all share the potential for very large consequential damages. Perhaps for that reason, they are almost all mercantile contracts; it is unlikely that an individual would be able to pile up huge consequential damages, and almost as unlikely that one would supply something to a firm that could.[84]

More important is how the courts apply disproportionality. Some, as noted, use it in related, but distinct, contexts—generally determining the validity of a limitation of liability clause or a liquidated damages clause.[85] Of those that face our basic fact pattern—very large consequential damages and a relatively small contract price—we see two basic categories. A number of courts seem to use disproportion as a means of determining what risks the parties to the agreement

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(contract to provide towing services to municipality); Zigas v. Superior Court, 174 Cal. Rptr. 806 (Ct. App. 1981) (financing agreement for low-income housing); Goodstein Constr. Corp. v. City of New York, 604 N.E.2d 1356 (N.Y. 1992) (negotiation agreement for development rights); Kenford Co. v. County of Erie, 489 N.Y.S.2d 939, 951–57 (App. Div. 1985) (Hancock, P.J., dissenting), *rev'd*, 537 N.E.2d 176 (N.Y. 1989) (construction of stadium).

[79] *See* Vitol Trading S.A. v. SGS Control Servs., Inc., 874 F.2d 76 (2d Cir. 1989); Sundance Cruises Corp. v. American Bureau of Shipping, 799 F. Supp. 363 (S.D.N.Y. 1992), *aff'd*, 7 F.3d 1077 (2d Cir. 1993); International Ore & Fertilizer Corp. v. SGS Control Servs., Inc., 743 F. Supp. 250 (S.D.N.Y. 1990), *aff'd*, 38 F.3d 1279 (2d Cir. 1994).

[80] *See* Markowitz & Co. v. Toledo Metro. Hous. Auth., 608 F.2d 699 (6th Cir. 1979); Native Alaskan Reclamation & Pest Control, Inc. v. United Bank Alaska, 685 P.2d 1211 (Alaska 1984); Glatt v. Bank of Kirkwood Plaza, 383 N.W.2d 473 (N.D. 1986).

[81] *See* Postal Instant Press, Inc. v. Sealy, 51 Cal. Rptr. 2d 365 (Ct. App. 1996).

[82] *See* Schwanbeck v. Federal-Mogul Corp., 578 N.E.2d 789 (Mass. App. Ct. 1991).

[83] *See, e.g.*, Husman Constr. Co. v. Purolator Courier Corp., 832 F.2d 459 (8th Cir. 1987) (courier services); Dixon Venture v. Joseph Dixon Crucible Co., 584 A.2d 797 (N.J. Super. Ct. App. Div. 1991) (transfer of contaminated property); Paris of Wayne, Inc. v. Richard A. Hajjar Agency, 416 A.2d 436 (N.J. Super. Ct. App. Div. 1980) (real estate brokerage agreement); General Star Indem. Co. v. Bankruptcy Estate of Lake Geneva Sugar Shack, Inc., 572 N.W.2d 881 (Wis. Ct. App. 1997) (commercial insurance policy).

[84] The comment to the Restatement (Second) observes, however, that section 351(3) is "more likely to be imposed in connection with contracts that do not arise in a commercial setting." RESTATEMENT (SECOND) OF CONTRACTS § 351 cmt. f (1979). Very nearly the only non-commercial contracts that have been the subject of disproportionality disputes are governmental contracts—and, if the point of this comment was to bring out the relative sophistication of commercial parties, the governmental cases are only dubiously non-commercial.

[85] *See supra* note 74.

contemplated shifting, whether because they had not entirely shedded the tacit agreement test or because they used an older formulation of the second part of *Hadley*.[86] One can certainly imagine that disproportion might be a useful index to intent, and even to the more pertinent foreseeability, but this inquiry somewhat misses the point of Restatement (Second) section 351(3). This section assumes that consequential damages *are* recoverable, and determines whether these otherwise recoverable damages should be limited or eliminated.[87]

Concentrating, then, on the cases that use disproportionality to limit foreseeable consequential damages, we find, unsurprisingly, that the extent of the disproportion is the most important element addressed. It is, after all, the only restriction addressed in the Restatement (Second) section itself, and it draws attention in the comment as well.[88] The disproportion in the successful cases tends to be very great indeed. In *Sundance Cruises Corp. v. American Bureau of Shipping*, one of the ship inspection cases, the fee charged by the defendant was $85,000, while the damages sought were $264,000,000—a ratio of roughly three thousand to one.[89] Though often the courts do not use specific numbers, particularly when they are ordering remands, the degree of disproportion generally seems substantial, if not always of that order. For instance, in *Glatt v. Bank of Kirkwood Plaza*, the trial court awarded damages of about three and one-half million dollars for breach of an agreement to lend less than two million.[90] Likewise, in *Seaman v. United States Steel Corp.*, judgment was entered for $85,000, while the cost of the steel furnished by the defendants was only $410.45.[91] Most of the discussion of disproportion is,

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[86] *See, e.g.*, Goodstein Constr. Corp. v. City of New York, 604 N.E.2d 1356, 1361–62 (N.Y. 1992); Kenford Co. v. County of Erie, 537 N.E.2d 176, 178–79 (N.Y. 1989). Interestingly, the tacit agreement test was considered briefly as a possible substitute for disproportionality. *See* 56 A.L.I. PROCEEDINGS 340–43 (1979).

[87] *See, e.g.*, Harvey, *supra* note 14, at 667.

[88] *See* RESTATEMENT (SECOND) OF CONTRACTS § 351(3) & cmt. f (1979).

[89] *See* Sundance Cruises Corp. v. American Bureau of Shipping, 7 F.3d 1077, 1084 (2d Cir. 1993); *see also* Vitol Trading S.A. v. SGS Control Servs., Inc., 874 F.2d 76 (2d Cir. 1989) (fee of $220 versus claimed damages of $547,688—ratio of roughly two thousand to one).

[90] *See* Glatt v. Bank of Kirkwood Plaza, 383 N.W.2d 473, 474–75 (N.D. 1986); *see also* Native Alaskan Reclamation & Pest Control, Inc. v. United Bank Alaska, 685 P.2d 1211 (Alaska 1984) (damages of over two million dollars from failure to honor one hundred thousand dollar credit commitment).

[91] *See* Seaman v. United States Steel Corp., 400 A.2d 90, 91–92 (N.J. Super. Ct. App. Div. 1979); *see also* Whitmier & Ferris Co. v. Buffalo Structural Steel Corp., 482 N.Y.S.2d 927, 928–29 (App. Div. 1985) (breach of option contract for rental of billboards at $600 per year induced damages of $227,000 per year).

however, more qualitative, stressing the possible oppression or surprise that could come from large liability rather than the actual extent of the disproportion in the case at hand.[92]

Perhaps more interesting are the disproportionality analyses where disproportion was not found. Some of these had no real measure of the degree of disproportion, merely noting that there was sufficient gain by the promisor to eliminate the defense.[93] Others show fairly modest ratios—as, for example, *Apex Towing Co. v. Trading Corp. of Pakistan*, with a contract price of almost two million dollars and damages of about six hundred thousand.[94] Worth more attention are the decisions in *Perini Corp. v. Greate Bay Hotel & Casino, Inc.* and *International Ore & Fertilizer Corp. v. SGS Control Services, Inc.*, which from the numbers look like relatively promising disproportionality cases. In *Perini*, the defendant, a general contractor, was held liable for over $14,500,000 when it received a management fee of only $600,000.[95] Even more strikingly, the defendant in *International Ore* had to pay damages of $713,666.27 for breach of a contract priced at $150, a ratio of 4758 to one.[96] Yet both judgments were affirmed.[97] Why?

In each, the other factors referred to in the Restatement (Second) comment supported affirmance. As the *International Ore* court pointed out, the parties were "sophisticated repeat players in a competitive market," with a long-

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[92] *See, e.g.*, Postal Instant Press, Inc. v. Sealy, 51 Cal. Rptr. 2d 365, 373–75 (Ct. App. 1996); Schwanbeck v. Federal-Mogul Corp., 578 N.E.2d 789, 804–05 (Mass. App. Ct. 1991); Cayuga Harvester, Inc. v. Allis-Chalmers Corp., 465 N.Y.S.2d 606, 613–14 (App. Div. 1983).

[93] *See, e.g.*, All Points Towing, Inc. v. City of Glendale, 735 P.2d 145, 148 (Ariz. Ct. App. 1987).

[94] *See* Apex Towing Co. v. Trading Corp. of Pakistan, No. 82 Civ. 8324 (RWS), 1984 WL 805 at *1–2 (S.D.N.Y. Aug. 20, 1984).

[95] *See* Perini Corp. v. Greate Bay Hotel & Casino, Inc., 610 A.2d 364, 380 (N.J. 1992).

[96] *See* International Ore & Fertilizer Corp. v. SGS Control Servs., Inc., 38 F.3d 1279, 1289 (2d Cir. 1994) (Mishler, J., concurring in part and dissenting in part).

[97] *Paris of Wayne, Inc. v. Richard A. Hajjar Agency*, 416 A.2d 436, 442–43 (N.J. Super. Ct. App. Div. 1980), showed a similar degree of disproportion—a brokerage fee of $300 and a judgment of $58,900—but the award was upheld because of the fiduciary relationship of the parties, against the suggestion of the court that it might have been reduced in an ordinary commercial transaction. The peculiar facts thus warrant little discussion on their own merits, though they may suggest a role for fault-based analysis as an element of section 351(3). *See also, e.g.*, George M. Cohen, *The Fault Lines in Contract Damages*, 80 VA. L. REV. 1225 (1994); Harvey, *supra* note 14, at 677 (fault is relevant for section 351(3)).

standing business relationship.[98] Furthermore, SGS, the defendant, was a frequent actor in a highly professional area; it could easily have insured against its potential liability for inadequate inspections.[99] In light of these facts, the relative informality of this particular arrangement—by telephone and telex—was immaterial, for the defendant was amply familiar with the seriousness of the job to be performed.[100] Similarly, in *Perini*, the court pointed out that the defendant, an experienced general contractor, knew of the types of risk involved in building casinos.[101] It could thus have bargained for a clause absolving it from liability for delay.[102] Nor was the contract informal; rather, it was quite detailed, addressing other sorts of damages in several provisions.[103] In contrast, where the court had suggested the value of disproportionality analysis in a case with a much lower ratio of damage to contract price, it was not at all clear that the parties had taken the risk into account.[104]

When courts have found disproportionality, their remedial responses have generally been unadventurous. The Restatement (Second) invites them to reduce or limit consequential damages or grant only reliance damages, and the reporter, during a discussion of the provision, added that a court could also limit reliance damages by excluding incidental reliance, although he was reluctant to place that in the comments.[105] In the main, though, the courts have simply refused to give consequential damages, rather than reduce them or otherwise limit the remedy.[106] The exceptions are cases that deny expectation,

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[98] *International Ore*, 38 F.3d at 1284; *see also* RESTATEMENT (SECOND) OF CONTRACTS § 351 cmt. f (1979) (commercial setting should rarely invoke section 351(3)).

[99] *See International Ore*, 38 F.3d at 1284–85.

[100] *See id.*; *see also* RESTATEMENT (SECOND) OF CONTRACTS § 351 cmt. f (1979) (informal dealing supports use of section 351(3), as parties may not have attempted carefully to allocate risks).

[101] *See* Perini Corp. v. Greate Bay Hotel & Casino, Inc., 610 A.2d 364, 382 (N.J. 1992).

[102] *See id.*

[103] *See id.* at 381.

[104] *See id.* at 380; *see also* Dixon Venture v. Joseph Dixon Crucible Co., 584 A.2d 797, 799 (N.J. 1991) (damages of $6850 plus posting a letter of credit for $500,000, with contract price of $3,000,000).

[105] *See* RESTATEMENT (SECOND) OF CONTRACTS § 351 cmt. f (1979); 56 A.L.I. PROCEEDINGS 337–40 (1979); *see also* Harvey, *supra* note 14, at 667–73.

[106] *See, e.g.*, Vitol Trading S.A. v. SGS Control Servs., Inc., 874 F.2d 76, 80–82 (2d Cir. 1989); Postal Instant Press, Inc. v. Sealy, 51 Cal. Rptr. 2d 365, 371–76 (Ct. App. 1996); Kenford Co. v. County of Erie, 537 N.E.2d 176, 178–80 (N.Y. 1989).

instead giving reliance,[107] and cases that give no remedy at all.[108] The trickier risk-splitting for consequential damages suggested by section 351(3) has no takers so far.

In short, then, the cases have not clearly laid out the bounds of disproportionality analysis. The factors contained in the Restatement (Second) comment seem germane, as might such things as whether the defendant is not merely commercial but also experienced in the particular type of transaction, or whether the defendant would have excessive leverage over the plaintiff were it to be able to invoke disproportionality, or whether the defendant should be able to insure against the risk of non-performance. These factors are helpful enough as far as they go, but one may fairly ask how far that is.

Nor, indeed, have the commentators provided this guidance, though asking that of them may be unfair. Some, after all, wrote mainly to attack the idea. Professor Harvey, for example, sharply criticized the uncertain range of section 351(3), extending, as it may, to the full range of contract remedies.[109] Beyond the scope, though, Harvey questioned the justice-based test; although the black-letter mentions disproportion as a necessary condition, and some other factors appear in the comments, it is not clear just what is sufficient.[110] Thus, in his view, the law of contract damages was left indeterminate, perhaps a very costly result as one seeks to deal with a modest array of problems.[111] Somewhat in contrast, Professor Young found the section, not insufficient, but "simply overwritten," for, as it stands, it seems to support crude difference-splitting.[112] Better to put in place a plain tacit agreement test for disproportionate consequential damages, thus narrowing the scope and complexity of the analysis.[113]

Professor Kniffin is the most ardent scholarly defender of disproportionality

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[107] *See, e.g.*, Schwanbeck v. Federal-Mogul Corp., 578 N.E.2d 789, 804–05 (Mass. App. Ct. 1991).

[108] *See, e.g.*, Sundance Cruises Corp. v. American Bureau of Shipping, 7 F.3d 1077, 1084–85 (2d Cir. 1993).

[109] *See* Harvey, *supra* note 14, at 668–73. So far, as we have seen, the section appears to have been confined to expectation, and there almost entirely to consequential damages. One of the illustrations to the section deals with general damages, though, and Professor Farnsworth, the reporter, showed no reluctance during a colloquy to extend the section's coverage to reliance expenditures. *See* RESTATEMENT (SECOND) OF CONTRACTS § 351 cmt. f, illus. 19 (1979); 56 A.L.I. PROCEEDINGS 337–40 (1979).

[110] *See* Harvey, *supra* note 14, at 678–79.

[111] *See id.*

[112] Young, *supra* note 14, at 30.

[113] *See id.*

analysis, as a sort of unconscionability clause for remedies.[114] In contrast to Professor Harvey, she finds the remedy "carefully and admirably crafted," showing efficient "clarity and precision."[115] Thus, for example, the factors contained in the comment to section 351(3) would sufficiently constrain courts.[116] In any event, fairness, she contends, has long been a part of the law of contract remedies, so all that section 351(3) has done is make it overt, rather than covert.[117] Perhaps it is clearer and more direct than, for example, the tacit agreement test, which she holds out as an alternative.[118] As we have seen, though, there is still a considerable degree of vagueness in the field, and the wide range of ratios that may or may not qualify as disproportionate may provide less comfort than one might hope.[119] And with no more guidance than the Restatement (Second) and the erratic case law provide, there may still be room, if disproportionality is a sensible overlay to consequential damages analysis, for further guidance from the academic peanut gallery. First, though, we must determine whether disproportionality analysis could be appropriate; then, if so, we can focus on its range.

III. DEFAULT THEORY AND DISPROPORTIONALITY ANALYSIS

So much for the current state of disproportionality. The real question, which will occupy the balance of this Article, is whether disproportionality should be added to orthodox *Hadley* analysis and, if so, when. The bulk of this Part will use modern default rule analysis to show that disproportionality has at best an extremely modest claim to virtue. Using the major types of default rules as our structure, then, we shall look for some group of situations in which defendants might sensibly invoke disproportionality analysis. This search shall, I think, be in vain, at least using this set of lenses, so perhaps it warrants justification. Why not simply follow some commentators on disproportionality and leave it to the discretion of the court, doing justice as the court sees fit?[120]

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[114] *See* Kniffin, *supra* note 14, at 247; *see also* Comment, *Lost Profits as Contract Damages: Problems of Proof and Limitations on Recovery*, 65 YALE L.J. 992, 1022–24 (1956). Professor Harvey pointed out the analogy to unconscionability as well, but was more inclined to question the equivalent breadth of delegation to the judiciary. *See* Harvey, *supra* note 14, at 678–79.

[115] Kniffin, *supra* note 14, at 276.

[116] *See id.* at 254–55 & n.64.

[117] *See id.* at 259–63.

[118] *See id.* at 269–71.

[119] *See infra* notes 123–139 and accompanying text (discussing the value of certainty).

[120] *See, e.g.*, Kniffin, *supra* note 14, at 247.

One need not share Holmes's oft-expressed distaste for justice to doubt that this enterprise will prove worthwhile.[121] Unconfined, equity becomes what Max Weber referred to as "kadi justice"—unsystematic, often unpredictable results lacking a governing principle.[122] At best, notions like "reasonable" or "equitable" or "unconscionable" may develop set ways over time, thanks to precedent, but they never quite lose their loose structure.

Why might this be a problem? To answer this, we must examine briefly the classic distinction between rules and standards. These terms are variously defined, but most definitions focus either on precision or the source of content. Rules are relatively formal, specific guides to conduct, designed to carry out some normative goal with a minimum of interpretation or discretion. In contrast, standards are more general, giving goals or criteria which afford the decisionmaker a good deal of discretion in their application.[123] Thus, for instance, a fifty-five-miles-per-hour speed limit is a rule, while a law stating that one must always drive at a reasonable speed is a standard. To be sure, the distinction can become perilously fine. Further, rules can become standards, and vice versa.[124] But the distinction nevertheless has a good deal of analytical

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[121] Holmes's views on abstract justice come to us in various forms. One especially nice version is Learned Hand's:

> When we got down to the Capitol, I wanted to provoke a response, so as he walked off, I said to him: "Well, sir, goodbye. Do justice!" He turned quite sharply and he said: "Come here. Come here." I answered: "Oh, I know, I know." He replied: "That is not my job. My job is to play the game according to the rules."

Learned Hand, *A Personal Confession*, *in* THE SPIRIT OF LIBERTY 302, 307 (Irving Dillard ed., 3d ed. 1960). *See generally* Michael Herz, *"Do Justice!": Variations of a Thrice-Told Tale*, 82 VA. L. REV. 111 (1996) (collecting and discussing different versions).

[122] *See* 3 MAX WEBER, ECONOMY AND SOCIETY: AN OUTLINE OF INTERPRETIVE SOCIOLOGY 976–78 (Guenther Roth & Claus Wittich eds., 1968).

[123] *See, e.g.*, Douglas G. Baird & Robert Weisberg, *Rules, Standards, and the Battle of the Forms: A Reassessment of § 2-207*, 68 VA. L. REV. 1217, 1227–28 (1982); Isaac Ehrlich & Richard A. Posner, *An Economic Analysis of Legal Rulemaking*, 3 J. LEGAL STUD. 257, 258 (1974); Louis Kaplow, *Rules Versus Standards: An Economic Analysis*, 42 DUKE L.J. 557, 559–60 (1992).

[124] A selectively enforced rule will have much the effect of a standard. The speed limit mentioned above is a good example; though most drivers are nominal miscreants, the gendarmerie enforces the law only against egregious scofflaws, or those who are otherwise behaving oddly—thus converting a bright-line rule into a de facto standard. On the other hand, a flexible standard can become a rule in a precedential system, as its general language acquires more and more concrete meaning. *See, e.g.*, Ian Ayres, *Preliminary Thoughts on Optimal Tailoring of Contractual Rules*, 3 S. CAL. INTERDISC. L.J. 1, 15–16 (1993); Kaplow, *supra* note 123, at 577–84.

force.

One can debate endlessly about the relative merits of rules and standards.[125] A useful place to begin is with Louis Kaplow's observation that rules impose costs ex ante, while standards impose costs ex post.[126] Rules are relatively costly to set forth, because they must provide relatively precise guides to conduct. Once they exist, though, they should be more or less easy to apply.[127] In contrast, standards are not as difficult to promulgate, for they consist mostly of general statements—that one should drive safely, act reasonably, contract in good faith—without much formal content. For that reason, they are harder to apply than rules, as their content must be developed with expert aid and in our realm of contract, often through judicial or quasi-judicial proceedings. Thus, a rule should be cheaper when the situation it governs comes about often enough to warrant the costs of promulgating it, while a standard should be cheaper when its infrequent use justifies only a relatively flexible, cheap means of deciding.[128]

The law of contract damages, put generally, should fall much closer to the rule side of this cost divide than the standard side. Though it is true that relatively few contracts are breached, all contracts are made and performed against a remedial background. The Holmesian bad man, sneering at commercial ethics, places the law of remedies foremost when he decides

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[125] Indeed, this debate has been pointed to by advocates of Critical Legal Studies as a sign of the fundamental incoherence and manipulability of a rule-based system. *See, e.g.*, MARK KELMAN, A GUIDE TO CRITICAL LEGAL STUDIES 15–63 (1987); Duncan Kennedy, *Form and Substance in Private Law Adjudication*, 89 HARV. L. REV. 1685 (1976).

[126] *See* Kaplow, *supra* note 123, at 585–86.

[127] Of course, some rules are quite complex—for example, the Sentencing Guidelines or the grids for Social Security disability payments. The question is not so much whether they can be applied without technical skill as whether they can be applied without judgment or nuance—Llewellyn's situation-sense, perhaps—and thus whether they can be applied ministerially.

[128] More precisely, there are two elements to this analysis: the cost as such and the indirect effect of the cost. If an individual can more cheaply become informed under a rule than under a standard, then the difference in cost, taking into account the number of people seeking information, will help decide whether a rule or a standard is preferable. But if the costs of rules and standards differ, then some people will decide that the costs of becoming informed under one, but not the other, are not worth the benefit. They will thus choose ignorance as a sort of bounded rationality. *See, e.g.*, Kaplow, *supra* note 123, at 571–77, 596–99. This sort of ignorance has its own costs, stemming from the potential for behavior that violates the rule or standard. First, obviously, is the direct loss if one falls afoul of the rule or standard. In addition, the uncertainty can yield excessive precaution for the risk-averse. *See, e.g.*, Richard Craswell & John E. Calfee, *Deterrence and Uncertain Legal Standards*, 2 J.L. ECON. & ORG. 279, 299 (1986).

whether to perform or breach.[129] Of course, the bad man would logically look elsewhere as well; his reputation may have value, for example, and so he may not choose to breach efficiently where the breach would work too great a harm to his standing in the relevant business community.[130] These sorts of contracts—relational contracts—are somewhat less driven by the law of remedies than are more monistic contracts.[131] Even for the relational contractor, though, remedies are not irrelevant, if only because relations can break down, and the remedies available may dictate how one responds to a failing relationship. Given this all but ubiquitous presence of the law of contract remedies, then, the ex post costs of uncertainty are quite weighty.

Furthermore, consequential damages figure prominently in contract remedies problems, not merely in the minds of law professors sadistically wringing the last little bit out of *Hadley*. The prospect of an ill-defined exception to classic *Hadley* analysis might well drive up transaction costs greatly and, as Craswell and Calfee have suggested, lead to overcompliance by contracting parties.[132] If a firm is uncertain whether it will be liable for damages, and is somewhat averse to risk, it will tend to value the risk more highly than it ought. The excessive valuation may cause the firm not to enter into contracts that would be more profitable than their replacements, thus lowering its wealth, or set a lower price on performance than is appropriate, thus reducing the net gains from contracting. Moreover, the party potentially in breach will look to the consequences of breach to help set its degree of precaution.[133] Here uncertainty may lead to errant estimation, whether the

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[129] *See* Oliver Wendell Holmes, Jr., *The Path of the Law*, 10 HARV. L. REV. 457, 459 (1897).

[130] On the value of trust and reputation, see, for example, Larry T. Garvin, *Credit, Information, and Trust in the Law of Sales: The Credit Seller's Right of Reclamation*, 44 UCLA L. REV. 247, 341–44 (1996).

[131] *See, e.g.*, Robert Cooter & Melvin Aron Eisenberg, *Damages for Breach of Contract*, 73 CAL. L. REV. 1432, 1462 n.36 (1985); Garvin, *supra* note 130, at 339–40.

[132] *See* Craswell & Calfee, *supra* note 128, at 298–99; *c.f., e.g.*, Ehrlich & Posner, *supra* note 123, at 262–63 (discussing the "chilling" of socially valuable behavior by a vague criminal law).

[133] The problem of variant risk cannot be solved simply through insurance. The classic comprehensive general liability policy that provides the bulk of a business's insurance coverage covers only limited consequential damages. If the damages arise from damage to property or person, then they may well be covered, but not otherwise. Thus, most lost profits for missed business opportunities would be uncovered, and a business would have to self-insure for any such potential liability. There are specialized insurance riders that cover certain types of risks—for example, products liability riders—but these typically provide limited coverage with rather substantial premiums. They seem not to be in common use. In any

excessive, and hence wasteful, valuation of the risk-averse, or the inadequate, and hence overly hazardous, valuation of the risk-taking.[134] In neither case is the errant valuation efficient; with no reason to think this result morally beneficent, it should be discouraged.[135]

We must, however, go beyond this initial, unfavorable view of disproportionality. Standards are not necessarily the bogeymen of the legal world. For instance, parties to a contract may not need to know exactly what liabilities they face. If approximate knowledge suffices, then a standard may do quite as well as a rule, and more cheaply.[136] Indeed, a detailed rule could drive up the costs of approximation, and thus prove less desirable than a simpler

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event, greater risk would yield higher premiums, which would have to be taken into account when setting a course of action.

[134] *See, e.g.*, Kaplow, *supra* note 123, at 605; Alan Schwartz & Robert E. Scott, *The Political Economy of Private Legislatures*, 143 U. PA. L. REV. 595, 605 (1995). Nor are the extra resources put into determining damages socially worthwhile. *See* Louis Kaplow & Steven Shavell, *Accuracy in the Assessment of Damages*, 39 J.L. & ECON. 191, 201–03 (1996).

[135] Perhaps the last comment should be unpacked. To say that this result is inefficient is not to say that it is inappropriate. Though some have sought to make efficiency, or its cousin, wealth-maximization, into a positive good, we might more moderately look at it as *ceteris paribus* worthwhile, creating a presumption of merit that can be rebutted by, say, distributional arguments or ethical precepts. *See, e.g.*, RICHARD A. POSNER, ECONOMIC ANALYSIS OF LAW 27, 264–66 (4th ed. 1992); Richard A. Epstein, *Are Values Incommensurable, or Is Utility the Ruler of the World?*, 1995 UTAH L. REV. 683. Here, however, it is hard to see any such ethical defense. Virtually every disproportionality case pits business against business, which undercuts any sentiments one might have in favor of the downtrodden. More particularly, the battle is over how the parties should be held to have allocated the risk of non-performance. Disproportionality arguments thus are made by those who have breached contracts, which rather diminishes their moral force. To the extent, then, that *pacta sunt servanda* remains a bedrock principle of contracts, disproportionality should be discouraged. Hence the dismissive comment in the text.

Indeed, as Jules Coleman and colleagues have suggested, default rules probably should not be used to rectify perceived injustices between the contracting parties; because the parties can contract around the default rules, attempts to provide variant outcomes will lead to higher transaction costs as the better-positioned party seeks to protect its advantages by negotiating terms, thus depleting the assets of both parties. Furthermore, the unfairness is exogenous to the transaction itself; accordingly, the appropriate response is to forbid express agreements that capitalize on inequities, rather than to change an otherwise unobjectionable default rule. *See* Jules L. Coleman et al., *A Bargaining Theory Approach to Default Provisions and Disclosure Rules in Contract Law*, 12 HARV. J.L. & PUB. POL'Y 639, 708 n.75 (1989); *see also, e.g.*, Richard Craswell, *Contract Law, Default Rules, and the Theory of Promising*, 88 MICH. L. REV. 489 (1989).

[136] *See* Ayres, *supra* note 124, at 8–9.

standard.[137] This is particularly so if the standard is clear—more rule-like—to some part of the community. If, for instance, the standard is framed using terms of art for some part of the contracting world, the standard should behave more like a rule. Indeed, the U.C.C.'s reliance upon trade usage has some of this effect, as trade usage, readily admissible as parol evidence, is used to give meaning to performance standards otherwise left general.[138] And, as noted earlier, precedent can make a standard more certain, greatly reducing the costs of uncertain effect and application.[139]

But so what? Do any of these support disproportionality? Not really, and not enough. We are not faced here with the choice of an unduly detailed rule or a simple standard; rather, we have a fairly straightforward rule—orthodox *Hadley* analysis—to which we may or may not add a standard. Nor can we take refuge in approximation. Proof of consequential damages is generally itself an exercise in approximation; consider, for example, the vast uncertainties that attend proof of lost profits, quite an important category of consequential damages.[140] With disproportionality added on, we may cross from risk to uncertainty, in Frank Knight's formulation, rendering it impossible to frame a useful probability distribution and thus to predict an outcome accurately.[141] Finally, precedent and trade usage, though undoubtedly aids to certainty, do little here. True, disproportionality might, over time, develop some relatively firm meaning. But modern disproportionality case law is modest and somewhat scattered, providing little aid for the most assiduous parser of judicial dictum. In another generation or two, enough cases might have piled up to admit generalization, but the interim costs would be substantial. And consider the similar instance of punitive damages awards, which are subject to some constraints, constitutional or statutory. It is hard to say that the plethora of these cases has yielded a great deal of commercial certainty, and hard to say that the relative dearth of disproportionality cases will do any better.

For our sort of facts, then, rules should generally prove superior to standards, in that they should promote commercial certainty and yield more just

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[137] *See id.*

[138] *See* U.C.C. §§ 1-205, 2-202, 2-208 (1995); *see also, e.g.*, Todd D. Rakoff, *Social Structure, Legal Structure, and Default Rules: A Comment*, 3 S. CAL. INTERDISC. L.J. 19, 25-27 (1993).

[139] *See supra* note 124.

[140] *See generally* DUNN, *supra* note 29.

[141] As Knight makes the distinction, risk consists of future states in which the outcomes, though unknown, follow a known distribution, while uncertainty consists of those future states for which the distributions are also unknown. *See* FRANK H. KNIGHT, RISK, UNCERTAINTY AND PROFIT 233-34 (1921).

results. The unadorned disproportionality test is a quintessential standard, lacking even a laundry list of factors to provide modest guidance. This is not to say that disproportionality is necessarily wicked—only that, unadorned, it carries substantial vices with its virtues (if any, of course). But further inquiry may yield some groups of contracting parties for which the rule is sensible, whether because it maximizes wealth directly, evens out informational asymmetry, or the like.[142] By finding areas where it should be used, we can make this loose standard more like a rule and thus, to carry the theological metaphor further, allow it to repent and be saved. Hence the discussion that follows.

A. *Problem-Solving Default Rules*

The principal category of default rule is the problem-solving rule.[143] This rule seeks to mimic what most contracting parties would do if they could bargain without cost. In a world without transaction costs, as Coase famously observed, those entering into an agreement will, whatever their legal starting points, negotiate their way to an efficient result.[144] In such a world, then, the default rule is irrelevant, as, indeed, would be the better part of this Article. But this world is wholly imaginary, as Coase himself pointed out.[145] We are awash in transaction costs. Our own time has value, as does the time of anyone we hire—and then there are the incidental costs of doing business and the opportunities forgone, among others.[146]

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[142] Thus allowing disproportionality to serve the most common purpose asserted for it: to correct for the errors in risk allocation that even a good default rule can make. *See, e.g.*, RESTATEMENT (SECOND) OF CONTRACTS § 351 cmt. f (1979); Richard E. Speidel & James J. White, *The Emerging Article 2: Remedies for Breach of the Contract for Sale*, *in* THE EMERGED AND EMERGING NEW UNIFORM COMMERCIAL CODE 33, 41 (ALI-ABA Course of Study No. C965, 1994); Farnsworth, *supra* note 69, at 1208–10.

[143] This has also been called a majoritarian default rule. *See, e.g.*, Ian Ayres & Robert Gertner, *Filling Gaps in Incomplete Contracts: An Economic Theory of Default Rules*, 99 YALE L.J. 87, 93 (1989) [hereinafter Ayres & Gertner I].

[144] *See* Ronald H. Coase, *The Nature of the Firm*, 4 ECONOMICA 386, 391 (1937); Ronald H. Coase, *The Problem of Social Cost*, 3 J.L. & ECON. 1, 8 (1960) ("But the ultimate result . . . is independent of the legal position if the pricing system is assumed to work without cost.").

[145] *See* RONALD H. COASE, THE FIRM, THE MARKET, AND THE LAW 15 (1988); *see also* George J. Stigler, *The Law and Economics of Public Policy: A Plea to the Scholars*, 1 J. LEGAL STUD. 1, 12 (1972) ("The world of zero transaction costs turns out to be as strange as the physical world would be with zero friction.").

[146] More generally, one can define transaction costs to include search and information

The friction-full world in which we negotiate contracts thus requires that we choose default rules carefully. If the default rule departs from the rule that would be chosen by most contracting parties, then most contracting parties will have to contract around the rule. These contracting costs should, so the theory goes, dissuade us from choosing a rule other than that which would be chosen by a majority. Moreover, if the bargaining costs exceed the gain in wealth from bargaining, a rational party would choose not to bargain. The party might therefore accept a default rule that would prove inefficient because still greater inefficiency would result from bargaining around the rule.[147] If, in contrast, the default rule gives the most efficient outcome, then we need not worry about bargaining costs. If we assume, not unreasonably, that contracting parties generally want to maximize their gains from trade, then it follows that a default rule should seek to provide the most efficient result.

This analysis undergirds problem-solving default theory. As far as it goes, it seems right enough. Certainly it is very popular: legal economists have used it, or at least have asserted it, as they write about a wide range of situations.[148] Problem-solving theory is far from flawless; as we shall see, it overlooks a good deal. Its popularity, though, makes it a logical starting point. We should begin by looking at the garden-variety *Hadley* test, shorn of disproportionality, to see how it might be justified. If it can be justified, then we will see whether disproportionality aids or impedes these justifications.

1. Hadley *as a Problem-Solving Rule*

How might we explain *Hadley* using problem-solving theory? One approach looks directly at transaction costs. Using the basic facts of *Hadley*, we may assume, for the sake of simplicity, that there are two types of millers. One type, prudently keeping a spare millshaft around in case of shipping delays, may be termed a low-damage miller. The other, perhaps less prudent, lacks a

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costs, bargaining and decision costs, and policing and enforcement costs. *See, e.g.*, Douglas W. Allen, *What are Transaction Costs?*, 14 RES. L. & ECON. 1, 3–4 (1991); Carl J. Dahlman, *The Problem of Externality*, 22 J.L. & ECON. 141, 148 (1979) (defining transaction costs as search and information costs, bargaining and decision costs, and policing and enforcement costs).

147 *See, e.g.*, Ayres, *supra* note 124, at 12.

148 *See, e.g.*, Frank Easterbrook & Daniel Fischel, *The Proper Role of a Target's Management in Responding to a Tender Offer*, 94 HARV. L. REV. 1161, 1182 (1981) (corporate law); Charles J. Goetz & Robert E. Scott, *The Mitigation Principle: Toward a General Theory of Contractual Obligation*, 69 VA. L. REV. 967, 971 (1983) (contracts); Alan Schwartz, *Proposals for Products Liability Reform: A Theoretical Synthesis*, 97 YALE L.J. 353, 361 (1988) (torts).

spare millshaft and thus would be a high-damage miller. If we have a default rule that allows full consequential damages only where the damages are contemplated by the carrier, then the shipping company would ordinarily take the amount of care consistent with the lower measure of damages. This is lower than the amount that it would take if it knew that a shipment were high-damage. The high-damage miller would thus have an incentive to bargain around the default rule in order to get the higher level of care that its potential damages merit.[149]

In contrast, consider a rule that gives full consequential damages to all, such as the tort test of proximate cause. The shipping company could set its price based on the average risk it bears.[150] Low-damage millers would pay too much, and high-damage millers would pay too little. Again leaving aside for the moment the effects that the rule might have on whether millers choose to be high-risk or low-risk, the effect would be the reverse of that above: low-risk millers would have an incentive to bargain around the default rule.[151] The two rules thus set up different incentives to bargain, and lead different types of millers to seek different deals.

If we begin by looking purely at the transaction costs, we need to know whether there are more high-damage millers or low-damage millers. Initially, we can assume that the cost of bargaining around the rule is the same for each type of miller; accordingly, the better problem-solving default rule from the vantage of lowering transaction costs is the rule that fits more closely the preferences of most millers. Suppose first that there are more high-damage millers. Then the carrier would lower transaction costs by charging the high-damage price, thus giving the low-damage millers an incentive to disclose their relative safety (perhaps by accepting a limitation on the carrier's liability) in order to get a lower price.[152] The reverse is true if there are more low-damage

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[149] The result is a separating equilibrium—a world in which the market segregates participants by one or more salient characteristics, each with a different price. This is distinct from a pooling equilibrium, in which the market lumps together all participants at one price. *See, e.g.*, Ayres & Gertner I, *supra* note 143, at 111–12. *See generally* BERNARD SALANIÉ, THE ECONOMICS OF CONTRACTS 90–94 (1997) (pooling and separating equilibria); Michael Rothschild & Joseph Stiglitz, *Equilibrium in Competitive Insurance Markets: An Essay on the Economics of Imperfect Information*, 90 Q.J. ECON. 629, 634–37 (1976) (same).

[150] This creates a pooling equilibrium, as long as the low-damage millers cannot signal their type.

[151] *See* DOUGLAS G. BAIRD ET AL., GAME THEORY AND THE LAW 148–50 (1994).

[152] The carrier could also use a single price for all, setting the price by examining its balance of low-damage and high-damage customers. Such a system might be prone to adverse selection and moral hazard, though, and thus might prove undesirable in practice. Furthermore, if there are many more high-damage millers than low-damage millers, then the

millers. Then most millers would prefer a low-cost, low-damage default rule.[153] The carrier would start with a low-damage rate combined with a limitation on liability, allowing high-damage millers to buy insurance for an additional fee.[154] This last scenario, in fact, is what modern carriers generally do, suggesting that there is some basis for assuming that there are more low-damage shippers out there and thus that the *Hadley* test may be sensible.[155]

Beyond transaction costs, the damages rule chosen could affect the

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pooled price will rest quite near the high-damage price. Low-damage millers would then seek to opt out, whether by negotiating separately with the carrier or by using a carrier that would specialize in low-damage shipments. Whether because of moral hazard and adverse selection or because of market separation, then, one would expect the price to stray from the center.

In addition, a pooled price would oblige the low-damage millers to subsidize the high-damage millers. This cross-subsidization would dissuade the high-damage millers from exercising the optimal degree of care, thus driving up net costs. *See* Gwyn D. Quillen, Note, *Contract Damages and Cross-Subsidization*, 61 S. CAL. L. REV. 1125, 1129–1132 (1988).

[153] With a high-damage default rule, but a superabundance of low-damage shippers, carriers would set a pooled rate near the low-damage price. Low-damage shippers would thus have little incentive to bargain around the rule, for their transaction costs would probably exceed the drop in price. High-damage shippers would, of course, have no reason to divulge their state to the carriers, because then they would pay more. So low-damage shippers would cross-subsidize high-damage shippers. This result is inefficient, as the carrier will have no incentive to take cost-effective precautions for high-damage shipments. The combination of transaction costs and strategic withholding of information, however, supports this inefficiency. *See* Ayres & Gertner I, *supra* note 143, at 110–11.

[154] In game-theoretic terms, the carrier would engage in a screening game: it would move first in order to distinguish between low-risk and high-risk shippers. *See* ERIC RASMUSEN, GAMES AND INFORMATION 133–36 (1989); Ian Ayres & Robert Gertner, *Strategic Contractual Inefficiency and the Optimal Choice of Legal Rules*, 101 YALE L.J. 729, 739 & n.33 (1992) [hereinafter Ayres & Gertner II].

[155] *See* Richard A. Epstein, *Beyond Foreseeability: Consequential Damages in the Law of Contract*, 18 J. LEGAL STUD. 105, 120–21 (1989) (asserting that the use of a fixed tariff for breach of contract advances the joint interests of parties to a contract). *But see* Eisenberg, *supra* note 4, at 572 n.32 (criticizing Epstein). The carrier example may, however, be too simplistic. As we have seen, a great many consequential damages cases, particularly those involving perhaps disproportionate risks, involve transactions with greater complexity than carriage. A simple sale of goods can involve myriad product defects with myriad potential losses. To meet these, a promisor might offer a complex array of contractual loss regimes, with different rules and different limits available for different premiums. *See, e.g.*, Mark Geistfeld, Note, *Imperfect Information, The Pricing Mechanism, and Products Liability*, 88 COLUM. L. REV. 1057, 1063 (1988) (proposing mandatory menu of warranties for consumer purchases of goods). But such an array would cost the promisor a good deal to put together, increasing transaction costs, and the promisee might also find it harder to choose. We should thus be wary about accepting too freely an assumption that one party can itself induce the other to reveal necessary information. *See, e.g.*, Ayres & Gertner I, *supra* note 143, at 103.

tendencies of the parties to spread and reduce risk. In terms of spreading risk under a consequential damages rule, and the associated system under which both the basic price and the available damages are low, the high-damage miller would probably choose to negotiate for higher damages rather than bear the risk itself. The carrier probably can insure against its own possible delays more cheaply than can the miller. After all, the carriage is more nearly in the control of the carrier than of the miller, so the carrier can more cheaply avoid the risk of delay. Furthermore, the carrier almost certainly engages in more contracts of carriage than does the miller, so it is in a better position to arrange for third-party insurance, should it wish to shift the risk elsewhere, or spread the risk, should it prefer to self-insure. This should lower the cost of allocating the risk, which argues for placing the risk on the carrier once the risk is made known to it. Again, the basic *Hadley* rule seems justifiable.

Alternatively, one can focus on the risk borne, rather than on the costs of allocating it. This rationale views *Hadley* as a means of finding the least cost avoider.[156] In its simplest form, using the facts of *Hadley*, the risk should rest on the miller because, as Judge Posner put it,. "[p]rudence required that they have a spare shaft anyway, since a replacement could not be obtained at once even if there was no undue delay in carting the broken shaft to and the replacement shaft from the manufacturer."[157] True, the carrier could have taken this risk expressly—but it did not, and so it should not be held liable. Rather, liability should rest on "that party who was able to avert the consequence at least cost and failed to do so."[158] This rule is problem-solving if we assume that the parties to an agreement favor higher net profits. If they do—a reasonable starting assumption—then they ordinarily will want to put risk on the least cost avoider, because the contracting parties will wish to lower the costs of doing business. The market would allocate the cost of dealing with the risk, so the result of a least-cost-avoider rule should be a blend of lower contract prices and higher profits.

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[156] This is an argument especially familiar in tort theory. *See, e.g.*, GUIDO CALABRESI, THE COSTS OF ACCIDENTS 135–73 (1970). One sees the argument in contract as well. *See, e.g.*, George M. Cohen, *The Negligence-Opportunism Tradeoff in Contract Law*, 20 HOFSTRA L. REV. 941, 978–90 (1992) (developing a fault-based theory of contract law that combines the least-cost-avoider and opportunism approaches); Richard A. Posner & Andrew M. Rosenfield, *Impossibility and Related Doctrines in Contract Law: An Economic Analysis*, 6 J. LEGAL STUD. 83, 112–13 (1977).

[157] EVRA Corp. v. Swiss Bank Corp., 673 F.2d 951, 957 (7th Cir. 1982). It seems that Judge Posner rather liked this argument. *See* Rardin v. T & D Machine Handling, Inc., 890 F.2d 24, 27 (7th Cir. 1989); Afram Export Corp. v. Metallurgiki Halyps, S.A., 772 F.2d 1358, 1368 (7th Cir. 1985).

[158] *EVRA*, 673 F.2d at 957.

2. *Disproportionality: A Problem Created*

The *Hadley* rule seems to lower transaction costs and shift risk sensibly. Problem-solving theory thus favors *Hadley* as a default rule. What, then, of disproportionality? Before we look at the critiques of problem-solving default theory as applied to our situation, let us consider the effects that disproportionality would have on *Hadley* as a problem-solving default. These effects might best be studied by making a set of strict and thoroughly unrealistic assumptions, relaxing them one by one, and examining the results. So we shall start by assuming a world in which the parties know fully the pertinent legal rules (and can easily calculate their effects on a bargain), as well as their own risks of default and their complete costs of doing business. We will also assume for the moment that they cannot bargain around the law of consequential damages (thus yielding a pooling equilibrium).

a. *Transaction Costs*

Were risk-bearers able to claim disproportionality as a defense in a breach of contract action, and were they unable to contract around disproportionality (perhaps by agreeing expressly to take on disproportionate risks), then the value of their promises to perform would drop. In essence, they would promise that if they did not perform, they would compensate fully, unless the compensation would prove excessive. Cautious customers would insure for disproportionate damages and, as a result, pay less for the diminished promise by the vendor. Perhaps they might economize by doing so; they might be able to insure against disproportionate loss more cheaply. On the other hand, as noted earlier, this pooling equilibrium might fall prey to adverse selection and, perhaps, moral hazard—though moral hazard should be less of a problem with a cap on consequential damages.[159]

Now introduce bargaining, so that the parties to the agreement might, if they like, contract around the disproportionality default. The question then becomes whether the customer would prefer to take the risk of disproportionate loss itself, or sell it to the vendor. If the former is true, then disproportionality analysis should lower transaction costs; if the latter, it should increase them. This question can only be firmly answered with empirical data that do not yet exist. We may, however, be able to approximate a conclusion by looking both at efficient risk allocation and at the magnitude of the transaction costs. As before, it seems a sensible first step to assume that the parties to an agreement would rather a risk be placed with the party better able to bear it, as that would

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[159] Because the benefits of adding to one's risk would be attenuated in case of breach.

lower the net costs of performance. In addition, the cost of allocating risk specially may matter; if the cost is quite low relative to the risk, then the entire question of transaction costs may not be very significant.[160]

Adding risk allocation, we ask whether disproportionality places the risk on either the least cost avoider or the better risk spreader where *Hadley* by itself would not. This generally seems unlikely. Disproportionality analysis, absent bargaining, would lower the overall standard of care from that under *Hadley*, because a promisor would not be liable for risks that it otherwise would have had to bear. If the promisor were willing to sell insurance for disproportionate risk, then this question could become moot, at least if the promisor's price were sufficiently low. This seems not to happen. Common carriers, for instance, though happy to sell insurance for low-level risk, typically limit the value of the insurance one can purchase for a shipment. The relative abilities of the promisor and promisee to deal with risk are thus critical.

b. *Risk Spreading*

In general, the promisor should spread risk better than the promisee. The usual promisor will more often engage in the relevant sort of transaction than will the usual promisee. For example, Federal Express carries more packages than any customer ships—or, for that matter, than practically any customer makes contracts. And even though its customers may include very large firms, these firms may not be able to spread the risk of a single shipment over variant and unrelated transactions.

Even more to the point, the ability to spread risk depends on one's ability to estimate it accurately—at least as a necessary, though not sufficient, condition. The promisor should be able to do this better. It typically comes to the transaction innocent of the promisee's potential losses, as does the promisee of the promisor's risk of default. But *Hadley* requires explicit or implicit disclosure of the former, not the latter. True, a promisee may well know the promisor's risk of default. Some promisors may advertise this rate, and yet others may be obliged to make the information public—as, for instance, the percentage of flights that arrive on time. Furthermore, some promisees may, through repeated exposure to the promisor's performance or lack thereof, gain a good enough sense of the promisor's default rate.[161] But more typically, the

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[160] We should also recall the uncertainty that may attend disproportionality. If the parties to a contract are uncertain whether disproportionate damages might be recoverable, and if they are risk-averse, then they will generally seek to bargain around the default rule, even if the ultimate result under the default would prove satisfactory. This would increase transaction costs unnecessarily, thus showing the undesirability of too flexible a disproportionality rule.

[161] This would seem relatively likely where the promisee repeatedly undertakes the

promisee will have only a hazy notion of the rate of default, and hence would be ill-equipped to spread risk. A rule like disproportionality which could shift risk to the promisee thus seems inappropriate for at least a solid majority of the transactions to which it might apply.[162]

c. *Risk Reducing*

What about risk reduction? Here we have two elements in the value of the risk: the magnitude and the frequency. The magnitude is controlled by the promisee—the value of the shipment, the lack of any alternative plans, and the tightness of the timing. The frequency of breach is, however, controlled by the promisor.[163] One cannot say that magnitude is more or less important than frequency, any more than one can say that one blade of a scissors is more or less important than the other. But we are talking about risk reduction, which depends in part on timing. If everyone knows about disproportionality before acting, then everyone can adjust risk correspondingly. The promisee can plan more prudently, knowing that it will bear the risk of disproportionate loss unless it can sell the risk to another. It might then reduce the magnitude of its risk, perhaps by taking some precautions, at least to the extent that the precautions are cheaper than whatever insurance it can buy. So in the abstract, the promisee might well be the better risk-reducer.

But what sort of risk are we considering? Low-frequency, high-magnitude

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pertinent sort of transaction and where the frequency of default would come to the promisee's attention. These situations should not be too common. Some types of transactions are sufficiently common that a firm of any size should engage in them often enough to gather reasonably reliable data about default. Shipping contracts are prime examples. But will the data about default always come forward? Perhaps not. Complete default, yes; dissatisfied customers will make sure of that, though possibly not to the same people who decide about the cause of the default. But modest default might not be revealed. A minor delay in shipment may prove immaterial to a customer, and thus would go unreported to the promisee—but that very delay may prove critical in another transaction. So one needs to be alert to the possibility that the promisee will have enough information to spread risk accurately, while at the same time remaining aware that the possibility is far from a probability. Then, too, the promisee may err grievously in estimating the risk, even if it has the data. *See infra* Part IV.B.

[162] Except perhaps where the promisee knows the likelihood of the promisor's default. Even here, though, the other objections may apply.

[163] But perhaps not entirely—a promisee can make a promisor's work easier or harder. A promisee might also arrange for alternative performance, such as sending duplicate messages, keeping a spare millshaft, or hiring reserve labor. But that problem may better be controlled through doctrines like mitigation of damages than through disproportionality. And, as we shall see, excessive precaution is costly, and must be included in our calculus.

risk.[164] As Melvin Eisenberg has observed with respect to *Hadley* itself, the degree of prudence justifiable to reduce low-frequency risks is generally low, even when one factors in high magnitude.[165] Thus, assuming that the promisee is ordinarily prudent to begin with, the additional risk reduction that would result from shifting this risk to the promisee would be slight, if any.[166] This result is reinforced by the infrequency with which such risks come about and hence the weakness of the information that would allow a promisee to reduce its risks appropriately. In contrast, the promisor has much better information about the risk of default and, by definition, enough information about the magnitude of damage. It can thus invest appropriately in risk reduction. Furthermore, the promisor generally engages in more transactions of a given type than does the promisee, and thus can more plausibly add up its diminished risk premiums and spend them on risk reduction. The modest value of a disproportionate risk justifies almost nothing for a single transaction. The sum of the risks, though, may warrant some real expenditure. After all, risk reduction is not infinitely divisible, allowing a firm to buy fifty cents' worth here and a dollar's worth there. Risk reduction consists of discrete acts, each of which has real costs. Thus, risk reduction merges into risk spreading; only the firm that can spread risk can aggregate enough risk to reduce it. Again, disproportionality, by shifting risk back to the promisee, impedes risk reduction and hence contractual efficiency.

d. *The Effects of Asymmetric Legal Knowledge*

We have so far assumed that the parties to the risk-generating agreement both knew the arcana of Restatement (Second) of Contracts section 351(3). Would this statement's falsity affect the analysis? Certainly. After all, for a default rule to prove relevant, even in a world of costless contracting, both parties must know the rule.[167] Consider first a relatively easy case: neither

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[164] If the risk's magnitude is low, then its occurrence should not prove disproportionate by definition; the outcome will not dwarf the contract price. High-magnitude risks may be disproportionate, of course, but a high-probability, high-magnitude risk—say, the occupational hazards of a human cannonball or a law-school dean, to indulge in redundancy—make out a poor case for relief through disproportionality. So likely and vivid a risk must surely have been contemplated by the parties and thus factored into the contract price. If so, then why grant the defendant relief after it has banked its risk premium? We are thus left with low-probability, high-magnitude risks, which, as we have seen, fairly describe the peculiar world of disproportionality cases.

[165] *See* Eisenberg, *supra* note 4, at 582–83.

[166] *See id.*

[167] *See* Ayres & Gertner II, *supra* note 154, at 738 n.30.

party knows about disproportionality. Then the parties will allocate risk as though under standard *Hadley* analysis.[168] If the parties actually do this, then adding disproportionality post hoc will likely alter their bargain, which should be avoided.[169] If, of course, the parties deal with disproportionate risk expressly, then the default rule is irrelevant.

What if the parties do not allocate risk as though they are governed by *Hadley*? It has been argued that disproportionality is useful where the parties err in their *Hadley* analysis, not in fact wanting to allocate as much risk as *Hadley* would do.[170] This certainly could happen, particularly for unsophisticated parties. But how much naïveté should commercial law countenance? Recall that disproportionality addresses risks that fall under the second part of *Hadley*: risks that, though not flowing normally from the breach, were nevertheless within the contemplation of the breaching party. So the breaching party knew, or at least should have known, of the risk at issue, and still failed to allow for it. Contract law ordinarily looks askance at attempts to avoid contractual liability because of one's own error.[171] Perhaps one could justify a limited exception, based on mistake of law, for those instances where the bargain-in-fact differs from the bargain-in-law. But why must disproportionality be engrafted onto ordinary foreseeability to accomplish this, given the added uncertainty and inefficiency that would result?[172]

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168 *See supra* Part III.A.1.

169 Absent larger reasons of justice, perhaps one should respect the parties' autonomy to make even imprudent decisions. *See, e.g.*, CHARLES FRIED, CONTRACT AS PROMISE 7–27 (1981); MICHAEL J. TREBILCOCK, THE LIMITS OF FREEDOM OF CONTRACT 8–9 (1993). But autonomy does require some fairly strong assumptions about volition and information. *See, e.g.*, MILTON FRIEDMAN, CAPITALISM AND FREEDOM 13 (1962). In our circumstance, we may assume volition; otherwise, we enter the law of duress. The other usual assumption as well is that the parties are informed. This assumption is trivially false; we cannot know everything about everything, or even all the potentially relevant information about any real-world scenario. If, however, information is imperfect, and particularly if it is asymmetric, there may be a case for impinging upon actual autonomy in order to reach the result that perfect autonomy would yield. *See, e.g.*, TREBILCOCK, *supra*, at 102–46. This point is the subject of Part IV. The other issue this leaves aside is welfare; who gains, who loses, and who should. Again, this issue cannot be dealt with in one footnote, or one book. Here, though, where the typical parties are merchants, and where duress and the like are not present, it is hard to see what principles of equity or social justice might be invoked. We may thus leave the latter issues to one side, though we ought not abandon them entirely.

170 *See supra* note 142 and accompanying text.

171 *Cf.* RESTATEMENT (SECOND) OF CONTRACTS § 153 (1979); Andrew Kull, *Unilateral Mistake: The Baseball Card Case*, 70 WASH. U. L.Q. 57 (1992).

172 *See supra* notes 120–141 and accompanying text (discussing the costs of legal uncertainty).

Thus, if both parties are legally ignorant, a disproportionality test is at best useless. What if only one party is ignorant of the law? If one party knows of disproportionality and the other does not, then the party that knows of disproportionality should take it into account by paying less, or taking less, for risk. Should the promisee be the less knowledgeable party, then it will think it has greater protection than it does.[173] A guileful promisor could charge the full *Hadley* price to this promisee, delivering less protection than *Hadley* allows.[174] If, in contrast, the promisee is the offeror, it may well offer too high a price, allowing for both covered and uncovered risks. In either case, the ignorant promisee will pay for its ignorance with a higher contract price. Disproportionality thus allows promisors with knowledge to extract rents from promisees without.[175]

On the other hand, if a promisee knows of disproportionality and a promisor does not, then the promisor will expect to assume more risk than it ordinarily should. It may thus set too high a price for its activities. The promisee will be willing to pay less than the promisor will be inclined to charge, as it knows of the limits on its ability to recover damages. The promisee thus has a few choices. It can wave a copy of the Restatement (Second) at the promisor in an attempt to get it to lower its price. This scenario is amusing, but unrealistic; seldom, if ever, would the promisee think it worthwhile to educate the promisor, given the cost of doing so and the rather slender gain.[176] More likely, the promisee would have to contract expressly for

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[173] This should be rather a common state of affairs. Many contracting situations have repeat players on one side and infrequent players on the other, thus giving one side greater opportunities to become knowledgeable and lower costs involved in becoming so. *See, e.g.*, Ayres & Gertner I, *supra* note 143, at 98–99; Ayres & Gertner II, *supra* note 154, at 760 n.97; Randy E. Barnett, *The Sound of Silence: Default Rules and Contractual Consent*, 78 VA. L. REV. 821, 887–89 (1992).

[174] If the market consists of knowledgeable and ignorant promisees, then promisors could in principle respond by probing them as to their acquaintance with disproportionality, setting lower prices for the knowledgeable. This is highly unlikely to happen, given the costs of gathering the information and its relatively slender value when gathered. A more likely response is knowledge by proxy; a promisor may differentiate between classes of potential promisees, attributing knowledge based on other, easily found characteristics. For example, consumers might be charged more than businesses. Or, if knowledge of this sort is scarce, the promisor might set the price as though it is taking on the full risk and allow the savvy few to bargain around it, thus economizing on bargaining and information costs. In any event, it should be possible to make at least crude price distinctions of this type, though possibly finer ones may be difficult.

[175] For a similar observation on *Hadley* itself, see Ayres & Gertner II, *supra* note 154, at 760–61.

[176] Especially in light of the uncertainty of the concept. A rational promisor might well

disproportionality with the promisor. Though the disproportionality clause would be legally unnecessary, given that disproportionality would itself be the default rule, the promisor would not otherwise realize this. The clause in place, the promisor would lower its contract price, thus giving the promisee the equivalent of its default bargain. Here, though, the gain from trade is lowered by the cost of bargaining. In any event, the asymmetric information would not afford the promisee any rent-seeking opportunity equivalent to that afforded the promisor.

Furthermore, is disproportionality a sensible way to deal with these relatively rare cases? The focus, after all, is on the disproportionality between the damages that came about and the value of the contract. Consider, for example, Cardozo's concern in *Kerr Steamship* about the large liability that could result from a modest transaction.[177] But these risks are, by definition, low-probability risks, and thus must be discounted greatly. The harm caused by a miscarried message may be, say, one hundred thousand dollars, and the cost of the message only twenty. Disproportionate? Not if the risk of miscarriage is one in one hundred thousand. Then the value of the risk—the proper premium for insurance, leaving aside transaction costs—is one dollar, which falls well within the contract price, and hardly seems disproportionate in any standard sense of the term.

To be sure, these infrequent risks may add up. Though perhaps no one risk would overwhelm the contract, their sum might. One might then argue that disproportionality makes sense as a way to avoid these messy, factually intractable frequency-and-magnitude calculations; if the class of risks would not logically have been allocated to the promisor, given the contract price, then the promisor should not be liable if one of the risks comes about. This analysis may seem more logical than the conventional rationale, but in fact it helps little. The argument amounts to asking for an exception to the normal default rule for risk allocation; though ordinary risks may fall under the usual two parts of *Hadley*, we should not expect these especially infrequent, especially large risks to behave similarly. But why not? If the sum of the risks can be determined approximately ex ante, then, following the earlier analysis, the risks ordinarily should rest on the party better able to reduce them or spread them. Indeed, summing the risks weakens, rather than strengthens, the case for disproportionality; although a promisor might not be expected to parse out each rare risk, it should be able to aggregate its risk of non-performance and plan accordingly. In short, disproportionality, even for the more appealing cases,

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assign disproportionality a low value, given its continued vagueness. This problem would diminish, were disproportionality better defined, but the problems in the text would remain.

[177] *See* Kerr S.S. Co. v. Radio Corp. of Am., 157 N.E. 140, 142 (N.Y. 1927).

collapses into orthodox *Hadley* analysis, with the results that *Hadley* yields under its ordinary two parts.

B. *Information-Forcing Default Theory*

Problem-solving default theory properly emphasizes transaction costs, because they figure greatly in how we respond to legal rules and to each other, as Oliver Williamson, among others, has pointed out.[178] But this focus on transaction costs can yield a sort of optical illusion, in which a small object in the foreground appears to tower over a larger, distant object. In fact, other aspects of contractual relations can prove more significant than transaction costs, thus requiring that we qualify what conclusions we may draw from problem-solving analysis.

1. *The Problems with Problem-Solving Default Theory*

Here we need to focus on information. The problem in *Hadley* comes about because the parties are not fully informed about each other's likelihood of default, on the one hand, and damages in case of default, on the other. Were the parties fully informed, they would edge nearer that ideal world in which the default rule is immaterial, for the parties would reach the most efficient outcome by themselves.[179] Because information must often be incomplete, so too must contracts; the costs of completing contracts will often—perhaps always—be too high to warrant covering every contingency.[180] To the extent that default rules mirror the ideal contract, the parties can adhere to it without incurring any of the transaction costs of bargaining,[181] thus increasing the extent to which actual and ideal contracting converge. Hence the virtue of

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[178] *See, e.g.*, OLIVER E. WILLIAMSON, THE ECONOMIC INSTITUTIONS OF CAPITALISM (1985); Oliver E. Williamson, *Transaction-Cost Economics: The Governance of Contractual Relations*, 22 J.L. & ECON. 233 (1979).

[179] *See supra* notes 143–146 and accompanying text; *see also, e.g.*, TREBILCOCK, *supra* note 169, at 103–26. However, even if the parties are fully informed, they will incur costs as they process the information and bargain with it. For sufficiently minor risks, they may well find it rational to remain ignorant—what Herbert Simon calls bounded rationality. *See infra* Part IV.A; *see also, e.g.*, BAIRD ET AL., *supra* note 151, at 149.

[180] *See, e.g.*, WILLIAMSON, *supra* note 178, at 70; Alan Schwartz, *Relational Contracts in the Courts: An Analysis of Incomplete Agreements and Judicial Strategies*, 21 J. LEGAL STUD. 271 (1992); Robert E. Scott, *A Relational Theory of Default Rules for Commercial Contracts*, 19 J. LEGAL STUD. 597 (1990).

[181] Default provisions may also gain certainty, perhaps through common use, which reduces both the likelihood of litigation and its costs.

problem-solving default rules.

But what if the transaction costs are not the sole obstacles to the ideal results? Consider the cross-subsidization effects discussed earlier for a high-damage consequential damages rule.[182] There the result was inefficient, but the parties had no incentives to bargain around it—the low-damage shipper because of transaction costs, and the high-damage shipper because of simple self-interest. The high-damage shipper would not reveal its status, because it would pay more for the same level of insurance. The inefficiency here stems not from transaction costs, but from asymmetric information.

Further, this inefficiency can be exacerbated by transaction costs. In the earlier example, cross-subsidization results from the low-damage shippers' unwillingness to contract around an inefficient default rule where the cost of contracting exceeds the gain from contracting. Nor can the carrier solve the problem easily by providing an array of prices and potential liabilities. Though a system of higher prices for higher liabilities might tease out high-damage from low-damage shippers, it comes at a cost: this approach generates lower gains from exchange than would be found in a world of symmetric information.[183]

2. *Information-Forcing Theory and* Hadley

Asymmetric information itself causes substantial inefficiencies, as well as in tandem with transaction costs. This suggests another approach to default rules, focusing on the reduction of these asymmetries. We thus have the information-forcing default rule.[184] Such a rule attaches a penalty when a party fails to disclose information, so that the party, preferring disclosure to penalty, will hand over the information and negate its strategic, but inefficient, advantage.

Before we discuss *Hadley* as an information-forcing default, and then

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[182] *See supra* notes 152–55 and accompanying text.

[183] For a full explication of this result, see Ayres & Gertner II, *supra* note 154, at 738–39, 767–73; on the inefficiencies of separating markets generally, see, for example, Rothschild & Stiglitz, *supra* note 149, at 634–37.

[184] The term was coined by Robert Scott. *See* Scott, *supra* note 180, at 609. This effect was brought forward by Ayres and Gertner, though it had earlier been noted by others. *See* Ayres & Gertner I, *supra* note 143; *see also, e.g.*, Frank H. Easterbrook & Daniel R. Fischel, *Limited Liability and the Corporation*, 52 U. CHI. L. REV. 89, 113 n.45 (1985); Charles J. Goetz & Robert E. Scott, *Enforcing Promises: An Examination of the Basis of Contract*, 89 YALE L.J. 1261, 1299–1300 (1980); *cf.* Lucian Ayre Bebchuk & Steven Shavell, *Information and the Scope of Liability for Breach of Contract: The Rule of* Hadley v. Baxendale, 7 J.L. ECON. & ORG. 284 (1991) (raising a similar approach). *See generally* Ayres & Gertner II, *supra* note 154, at 735 n.24 (collecting references).

disproportionality as it affects the flow of information, we must briefly consider the peculiar difficulties with a default rule which compels information to flow under a threat of penalty. After all, the law of contracts ordinarily frowns upon penalties. Consider, for instance, the strict limits placed on liquidated damages clauses[185]—no penalty clauses allowed—and the virtual absence of punitive damages awards for breach of contract.[186] This antipathy is rooted in contract law's goal of compensation; a breached-against party should be given the benefit of its bargain, but no more (unlike the damages rules in tort, which encompass deterrence and retribution as well as compensation).[187] One may also justify compensation in contract by looking at efficiency; as Alan Schwartz has argued, a remedial system that gives supracompensatory damages will be inefficient.[188] Ordinarily, then, we should look askance at contract rules that create penalties. Our wariness might also be heightened by the effect of this penalty—the coerced disclosure of information. If knowledge is power, as the saying goes, knowledge is also wealth. Why should a default rule oblige one party to hand information to another, information which derives its value from its asymmetry?[189]

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[185] *See, e.g.*, U.C.C. § 2-718(1) (1995); RESTATEMENT (SECOND) OF CONTRACTS § 356(1) (1979). This ban on penalty clauses, unique to the common law in its severity, has attracted some unfavorable comment. *See, e.g.*, Lake River Corp. v. Carborundum Co., 769 F.2d 1284, 1288–89 (7th Cir. 1985) (Posner, J.); Kenneth W. Clarkson et al., *Liquidated Damages v. Penalties: Sense or Nonsense?*, 1978 WIS. L. REV. 351; Charles J. Goetz & Robert E. Scott, *Liquidated Damages, Penalties, and the Just Compensation Principle*, 77 COLUM. L. REV. 554 (1977). *See generally* TREITEL, *supra* note 17, at 208–34 (reviewing European law on liquidated damages).

[186] *See, e.g.*, RESTATEMENT (SECOND) OF CONTRACTS § 344 (1979); Alan Schwartz, *The Myth that Promisees Prefer Supracompensatory Remedies: An Analysis of Contracting for Damage Measures*, 100 YALE L.J. 369 (1990). There are a few exceptions, most notably for bad-faith breach of an insurance contract. *See, e.g.*, STEPHEN S. ASHLEY, BAD FAITH ACTIONS § 8:03 (1984). *See generally* Symposium, *The Law of Bad Faith in Contract and Insurance*, 72 TEX. L. REV. 1203 (1994).

[187] This topic is vast. For illustrative discussions, see, for example, JULES L. COLEMAN, RISKS & WRONGS (1992); George P. Fletcher, *Fairness and Utility in Tort Law*, 85 HARV. L. REV. 537 (1972).

[188] *See* Schwartz, *supra* note 186. *But see, e.g.*, Daniel A. Farber, *Reassessing the Economic Efficiency of Compensatory Damages for Breach of Contract*, 66 VA. L. REV. 1443 (1980) (advocating punitive damages for bad-faith breach).

[189] One might also ask whether such a rule is justifiable in light of a promise-based or consent-based theory of contract. *See, e.g.*, FRIED, *supra* note 169; Barnett, *supra* note 173. Under either, compelled disclosure is initially suspect, whether because it falls outside the promises of the parties or falls outside the scope of their unforced consent. In either case, though, one can still make room for disclosure, as shown below. *See also, e.g.*, FRIED, *supra*

Perhaps efficiency may justify this intrusion. Information itself has little value, in a commercial context, except insofar as it enables one to gain through its use. The legal system then might appropriately encourage economic actors to acquire information. But not all information will lead to wealth creation. Some will, of course—for example, a geologist may find ore-laden lands that otherwise would have served as pasture, or a bibliophile may rescue a first edition from a discard bin. Some information, though, merely redistributes wealth—for instance, learning that one's house, soon to be sold, is infested with termites. A party to a transaction may find this sort of information valuable, in that it enables her to gain at the other party's direct expense. A legal regime that encourages parties to invest in wealth-redistributing information of this sort may, however, prove inefficient. All parties to a transaction would seek out this sort of information in order that they might not be hornswoggled; the net result would add nothing to wealth, but increase the costs of the transaction. In contrast, wealth-creating information is worth the investment; even if all parties to a transaction seek out these facts, their investments may well be repaid by the value that the information creates. Thus we have the proposition that the legal system should encourage economic actors to invest in wealth-creating, but not wealth-redistributing, information, perhaps by limiting a duty to disclose to the latter.[190]

Information-forcing default rules focus on wealth-redistributing information. In our context, for instance, the information in question is the presence of unusual risk. Nothing involved in the transaction will increase greatly in value as a result of the promisee's knowledge of the effect of breach; rather, the main effect of the knowledge is to allow the promisee to shift some of the risk of loss onto the promisor.[191] Should this information be asymmetric, the risk might end up on the party less able to bear it or spread it cheaply. The promisor thus has some incentive to seek out this information—but, inevitably,

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note 169, at 58–67 (making a case for a limited duty to disclose). Further, promise-based or consent-based theories may have little to say about the content of default rules, as distinct from when a promise that may embody default rules should be enforced. *See* Craswell, *supra* note 135.

[190] *See* ROBERT COOTER & THOMAS ULEN, LAW AND ECONOMICS 245–49 (2d ed. 1997); *see also, e.g.*, TREBILCOCK, *supra* note 169, at 106–18. Dean Kronman has proposed a different distinction, based on whether the information is casually or deliberately acquired, with only the latter subject to disclosure; since, however, one can casually acquire valuable information, and work quite hard to gather information that adds nothing to net wealth, it is hard to see the justification. *See* Anthony T. Kronman, *Mistake, Disclosure, Information and the Law of Contracts*, 7 J. LEGAL STUD. 1 (1978).

[191] The information might also affect the level of care taken by the promisor, as discussed earlier. *See supra* notes 164–66 and accompanying text.

at a cost. One can thus defend information-forcing default rules in general, and the *Hadley* sort of rule in particular, as an attempt to reduce information costs that yield no net wealth.[192]

How well does *Hadley* reduce these costs, furthering efficiency by forcing the disclosure of merely redistributive information? Fairly well. Consider first that *Hadley* may not always mirror the ideal bargain of the parties; possibly the carrier is the better risk-reducer or risk-spreader, even for unforeseeable risks.[193] If so, *Hadley* itself does not yield an efficient result, in the transaction costs sense. Still, how would we reach the efficient result of placing the risk on the carrier when the carrier can more cheaply bear the risk? If the carrier does not know the magnitude of the risks it takes on, it will not be able to reduce them efficiently.[194] Furthermore, simply placing the risk on the carrier will not solve the problem; as discussed earlier, the relatively modest risk premium that most carriers would charge might yield an inefficient pooling equilibrium with cross-subsidization.[195] The shipper thus will not disclose the information willingly, even though the net gains from trade would rise were it to do so.

The carrier could seek out the risk information directly, by asking the shipper, or indirectly, by studying the sorts of liability that result from different types of shippers or shipments. The former seems more practicable; the costs of indirect sleuthery would be tremendous. Nevertheless, the costs of asking all shippers could mount.[196] The ideal mechanism, then, would induce high-value shippers, and only high-value shippers, to divulge the potential magnitude of the risk of non-delivery. This *Hadley* does by setting the default rule to exclude damages beyond the obvious. The default rule places the burden on shippers to

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[192] *See, e.g.*, Bebchuk & Shavell, *supra* note 184, at 287–89. And information is a prerequisite to exercising autonomy. *See, e.g.*, TREBILCOCK, *supra* note 169, at 103.

[193] *See generally supra* Part III.A.1; *see also, e.g.*, Ayres & Gertner I, *supra* note 143, at 101.

[194] True, the carrier may be able to estimate aggregate risk, perhaps based on its history of muffing shipments, and spread risk accordingly, presumably by increasing its price. At any particular price, though, one may get adverse selection, if the risk adjustment is noticeable to potential shippers. Furthermore, reducing risk may not lend itself to aggregation as well as spreading risk does. Very possibly the most efficient way to reduce risk is to segregate high-magnitude shipments from their more mundane confreres, treating the former with especial care. If so, efficient risk-reduction requires that the carrier know the risk of each package, or at least of the high-magnitude packages. Thus the observation in the text.

[195] *See supra* note 152.

[196] Though the carrier could, as discussed earlier, seek out the information through a market basket of contracts, each with a different price and a different level of protection, it may incur significant costs in setting up and managing such a system. *See supra* note 154 and accompanying text.

divulge extraordinary risks to carriers; as the shippers already have this information, they can release it cheaply. Should most shipments have only foreseeable risks, this rule will prove efficient—not because it mirrors the wishes of most parties, but because it obliges those who have unforeseeable risks to let their hazards be known, lest they suffer the penalty of no recovery.[197]

3. *Disproportionality and Information-Forcing Theory*

Hadley thus avoids the tendency of those with information to withhold it strategically, even when divulging the information would yield a net gain for the contracting parties. But we undercut this pleasant, or at least efficient, effect when we add disproportionality to the legal rule. For an information-forcing default rule to compel a party to disclose information, it must impose a penalty default on those who do not contract around it by providing the information. In general, disproportionality has the effect of decreasing the penalty, which thus decreases the incentive to divulge the information. One would thus expect disproportionality, or any other rule that lowers the breached-against party's potential recovery, to vitiate the effect of an information-forcing default rule.

Beyond this general effect, though, is the specific way in which disproportionality reduces the penalty for non-disclosure. Disproportionality's effect is not uniform, acting as a sort of negative multiplier for consequential damages. Rather, its effect rests wholly on risks ordinarily unforeseeable by the ignorant party—risks that fall under the second part in *Hadley*. Disproportionality exercises its influence only when these risks come about, for only then is the contract price likely to be dwarfed by the liability. As a result, the promisor's liability for disproportionate risk would be diminished greatly, and the promisee would thus lose much of its incentive to disclose the information without getting an express agreement that the promisor would assume the liability. So disproportionality acts in two rather different ways: it reduces the penalty effect of disclosure where the risk would be dealt with implicitly, but it encourages the promisee to deal with the risk expressly.

On balance, this dual effect seems more a bane than a boon. The bane is obvious: by reducing the penalty, disproportionality would diminish the extent to which the default rule would force out information. The boon is less obvious,

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197 *See* Ayres & Gertner I, *supra* note 143, at 101–02; *see also* Jeffrey M. Perloff, *Breach of Contract and the Foreseeability Doctrine of* Hadley v. Baxendale, 10 J. LEGAL STUD. 39, 49–51 (1981). However, an information-forcing rule may prove inefficient if market participants adjust their preferences to reflect the existing rule, rather than respond to the rule by disclosing information. *See* Russell Korobkin, *The Status Quo Bias and Contract Default Rules*, 83 CORNELL L. REV. 608, 668–69 (1998).

and less significant. True, the promisee, which has the information in question, will stand a decent chance of recovering its damages only if it gets an express agreement shifting risk. If, however, this risk does not follow in the ordinary course of events, then the promisor will achieve this knowledge either if the promisee actually handed over the information or if its expertise, perhaps reinforced by a course of dealing, leads it to the information unbidden. Given the range of disproportionality cases thus far, the more likely scenario is that the promisee will have passed the information on to the promisor directly.[198] The promisee thus has already incurred the costs of informing the promisor of risk. Unless the promisor has provided for this contingency in a form contract, the added costs of contracting may dissuade the promisee from seeking to shift the risk expressly. After all, the likelihood of any of these remote risks coming about is very low; the value of contracting expressly for them therefore tends to be slight, and even modest impediments to contracting may prove sufficient to block any tailor-made solutions.[199]

Under basic information-forcing theory, then, disproportionality undercuts the forcing effect of the penalty and thus reduces the efficient flow of information. Before we can close our discussion of this sort of default rule, though, we must consider first, whether there is a discrete class of promisors for whom disproportionality might increase disclosure, and second, whether a more advanced form of the theory might lead to a different result.

4. *Mass Dealing and Disproportionate Risk*

The analysis above produces an unexceptionable general result. But is there a class of promisors that stands apart from the mass? Possibly so. Recall that the potential advantage created by disproportionality is its gentle pressure on promisees to contract for disproportionate risk expressly, for even full disclosure under the second part in *Hadley* may prove inadequate to shift the risk of default. In general, this pressure will be countered by the costs of express contracting, and thus will prove unavailing. Still, this may not always be true. Promisors who deal with disproportionate risk in bulk may find it expedient to create an array of contracts from which a promisee may easily select (as, for instance, most shipping companies do).[200] In these cases,

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[198] *See generally supra* Part II.B.

[199] As we discussed in the context of problem-solving defaults, the promisor usually will not provide in its forms for the range of contracts that make possible a separating equilibrium; as a result, one will tend to see pooling and cross-subsidization. *See supra* notes 154–55 and accompanying text.

[200] *See supra* note 154 and accompanying text; *cf.* John Elofson, *The Dilemma of*

disproportionality may have a modestly useful role. By reducing the expected recovery where the promisee gives the sort of notice sufficient under the second part in *Hadley*—say, the sort of notice that might actually have been given in *Hadley*, according to the reporter[201]—the promisee is obliged to contract expressly. If the express contract is drafted sensibly, it will increase the certainty of the transaction. This should lower the likelihood of any legal dispute and should lower the costs of resolving any dispute should it go to law. Though a definite minority of disputes are ultimately litigated, the costs of doing so are high enough that cheap express contracting may prove worthwhile.[202]

There is another reason why disproportionality may be helpful in these cases—cases like *Hadley* and *Kerr Steamship*, with promisors that deal with large numbers of promisees in similar transactions.[203] These cases rest on the fiction that a shipping clerk or another ministerial employee can act rationally for his employer. The law of agency imputes authority to this sort of employee—and properly so, for the most part.[204] But, as Cardozo suggested in *Kerr Steamship*, the real ability of these employees to assess risk on their employers' behalf is often dubious.[205] Nor would it usually be logical for a firm

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Changed Circumstances in Contract Law: An Economic Analysis of the Foreseeability and Superior Risk Bearer Tests, 30 COLUM. J. L. & SOC. PROBS. 1, 32–34 (1996) (proposing that risk of unforeseeable events be placed depending on the importance and probability of the event, on the one hand, and the cost of placing an exculpatory clause in the contract, on the other).

[201] In *Hadley*, the reporter states that Hadley actually told Baxendale's clerk that the mill had been closed and that the millshaft had to be shipped with haste, but Baron Alderson, in his opinion, states that no such notice had been given. *See* Hadley v. Baxendale, 156 Eng. Rep. 145, 147, 151 (Ex. 1854).

[202] *See, e.g.*, Bebchuk & Shavell, *supra* note 184, at 308–09. This is particularly important when the costs of drafting a careful form agreement can be amortized over a good many contracts.

[203] Actually, there is more than one other reason. The effect of express contracting is a separating equilibrium, which, in general, is more efficient than its pooling counterpart. *See supra* notes 149–55 and accompanying text.

[204] For a look at the literature assessing the law of vicarious liability, see, for example, Bruce Chapman, *Corporate Tort Liability and the Problem of Overcompliance*, 69 S. CAL. L. REV. 1679 (1996); Alan O. Sykes, *The Economics of Vicarious Liability*, 93 YALE L.J. 1231 (1984). *See generally* Michael C. Jensen & William H. Meckling, *Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure*, 3 J. FIN. ECON. 305 (1976) (theory of agency costs).

[205] *See* Kerr S.S. Co. v. Radio Corp. of Am., 157 N.E. 140, 141 (N.Y. 1927); *see also, e.g.*, Steven P. Croley, *Vicarious Liability in Tort: On the Sources and Limits of Employee Reasonableness*, 69 S. CAL. L. REV. 1705 (1996).

to train hordes of employees and agents who deal directly with customers in the nuances of risk assessment and pricing, given the costs of training and the usual lack of significance attached to these calculations.[206] Perhaps a disproportionality test merely acknowledges the fiction of actual agency in extreme cases, where the promisee should subjectively, and perhaps objectively, be aware that the desk clerk has no real authority to create massive potential liabilities for his employer or principal.

To say that disproportionality may have value here is not, however, to say that it is valuable. Bear in mind that mass dealers in remote risk—the class of promisors discussed here—typically deal with risk through a combination of a blanket disclaimer and graded insurance contracts. They contract around the default rule essentially by ignoring any information the promisee lobs their way. For these firms, disproportionality is largely irrelevant; they have already disclaimed risk, on the one hand, or they have bought it expressly through insurance contracts, on the other. A very large disproportionality exception might, one supposes, cause these firms to omit the disclaimer, but the costs of resolving consequential damages disputes make that outcome unlikely. In practice, then, this advantage of disproportionality is generally trivial.[207]

5. *Information-Forcing and Disproportionality with Powerful Promisors*

Now that we have considered a relatively straightforward application of information-forcing default theory to consequential damages and disproportionality, we should consider a more complex version. The refinement here stems from Jason Johnston's observation that strategic inefficiency could result, not merely from informational asymmetry, but also from market power: the more powerful party could use its power to discriminate with respect to price.[208] More particularly, suppose that the carrier has market power in the

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[206] Compounding the problem is the use of agents, rather than employees, as is common for carriers and telegraph companies.

[207] Possibly a mass dealer in risk might choose not to disclaim liability, perhaps out of simple ignorance. This seems improbable. Certainly the modern cases do not reflect any such trends, dealing as they do with relatively weighty transactions. *See supra* Part II.B. Furthermore, it has been observed that under modest assumptions—mutual risk-aversion and high transaction costs—no liability rule is efficient. *See* Perloff, *supra* note 197, at 63. Form contracting can help solve the default rule dilemma, which one would thus over time expect to see.

[208] *See* Jason S. Johnston, *Strategic Bargaining and the Economic Theory of Contract Default Rules*, 100 YALE L.J. 615, 623-29 (1990).

standard shipper-carrier illustration.[209] Then, says Johnston, the carrier will use any information divulged by the shipper to offer coverage for the shipper's risk at a price equal to the shipper's value.[210] In such a world, the shipper may not want to tell the carrier how it values the goods shipped; given the added cost of carriage, the shipper may be better off not releasing the information and taking the ordinary default measure. If, however, the shipper does this, then the transaction will be less efficient, for the carrier will not take cost-effective precautions against breach.

More generally, as Ayres and Gertner have observed, in a world of costless contracting a carrier with market power can offer a menu of contracts that will extract all the gains from trade from low-value shippers and most of the gains from high-value shippers.[211] This menu would screen shippers by offering high-value shippers an incentive to reveal their status, perhaps by lowering the available damages for one alternative enough to drive the high-value shippers to the other.[212] If, however, the carrier sets the low-value damages so that they undercompensate low-value shippers, then the carrier will inefficiently underinvest in precaution.[213] This will be true regardless of the default rule; accordingly, fussing over disproportionality would, in this world of market power, prove pointless.[214]

Of course, our world has costly contracting. This, regrettably, adds greatly to the complexity of the analysis. When we factor in transaction costs, even a simple consequential damages scenario generates a wide range of efficient separating and pooling equilibria, depending on the size of the transaction costs and the valuations of high-damage and low-damage shippers.[215] This provokes an important critique of problem-solving default rules: if the wealth-maximizing default rule for even a simple scenario is all but impossible to determine, does it make sense for legislators to attempt to do so broadly?[216] Still, before giving in

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[209] This assumption reverses that made earlier, where high-value shippers, by refusing to contract around an inefficient default, could effectively obtain a cross-subsidized pooled price. *See supra* notes 149–55 and accompanying text; *see also, e.g.*, Ayres & Gertner I, *supra* note 143, at 110–11.

[210] *See* Johnston, *supra* note 208, at 629.

[211] *See* Ayres & Gertner II, *supra* note 154, at 738–39.

[212] *See supra* note 154 and accompanying text.

[213] *See* Ayres & Gertner II, *supra* note 154, at 739.

[214] *See id.* at 740–42.

[215] For a full account of the range of options, see *id.* at 752–59.

[216] *See id.* at 765–67; *see also, e.g.*, Alan Schwartz, *The Default Rule Paradigm and the Limits of Contract Law*, 3 S. CAL. INTERDISC. L.J. 389, 406–11 (1993) (doubting the ability to write good default rules).

to a sort of existential anomie, we might look more closely at the various equilibria. After all, our interest is not in the welter of intermediate valuations that make for complicated graphs; our interest is in high-value shipments, and even the highest of the high, for there rests the basis for a disproportionality claim.

Adding transaction costs and market power to our simple information-forcing model yields, oddly enough, a simple result: the efficient outcome at sufficiently extreme levels is the ordinary consequential damages rule.[217] The carrier can maximize its profits by charging a price that only high-value shippers will accept. It could not do better through pooling, because then the low-value shippers would still opt out, in essence through adverse selection.[218] Nor could the carrier do better through offering a separating menu of contracts, with a low-cost, low-damages contract and a high-cost, high-damages contract; where the differences between low-damage and high-damage shippers are very great, the carrier can fight the tendency to pool only by lowering the low-damage contract's value to the vanishing point.[219]

This result suggests the unhelpfulness of disproportionality. The effect of disproportionality is to force high-damage shippers downward, very likely to a different means of efficient contracting. Perhaps separating contracts would prove more efficient; perhaps pooling would prove more efficient. Without more data than we have, it is hard to say. But the efficiency of an ordinary consequential damages rule under these assumptions—carrier market power, asymmetric information, transaction costs—depends greatly on the relative magnitudes of high-value and low-value contracts. Reducing the magnitude by changing the efficient default rule, may thus produce an inefficient result.

This extension of information-forcing default theory is necessarily vague and abstract, depending as it does on largely hypothetical data. It likely induces puzzlement more than certainty. Still, we can draw some tentative conclusions—first, that our choice of default rule may prove highly complex, and second, that adding disproportionality to a consequential damages regime may make a once-efficient default rule inefficient. Not perhaps overwhelming conclusions, but useful enough for at least one reason: they undercut the case for disproportionality as a part of consequential damages analysis. When combined with the clearer, if less nuanced, analysis under basic information-forcing theory, the case for disproportionality grows weaker still, and, as noted, largely irrelevant where it is strongest.

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217 *See* Ayres & Gertner II, *supra* note 154, at 754.

218 *See id.* at 748–49.

219 *See id.* at 749 n.70, 754.

IV. RISK, COGNITION, AND ERROR

The analysis above rests on a good many assumptions of varying degrees of plausibility. Important among them is an assumption about information. Both problem-solving default rule theory and information-forcing default rule theory assume, expressly or implicitly, that contracting parties will assimilate information readily and will respond to it rationally.[220] Problem-solving theory requires that the parties would reach their ideal bargain if only information were costless and were costlessly and perfectly analyzed. If, in contrast, most contracting parties misperceive information systematically and behave irrationally, then problem-solving default rules seem less desirable. The rules probably will not lower transaction costs if systematic error leads the parties consistently away from the ideal default. On the other hand, if we instead set the default rule at what most contracting parties *actually* do, then we gain lowered transaction costs but lose economic efficiency. The problem-solving default may still be desirable, but not merely because it is what most parties would choose to do.[221]

Information-forcing default rules are open to a similar criticism. They assume that, if the information is disclosed, the recipient will make a rational decision. If the information is misused or ignored, the ultimate contract will depart from the efficient ideal. In other words, the information would be worth less in a world of systematic cognitive error than it would in a world of perfectly processed information; as a result, the advantages of disclosure would be muted or effaced.[222] Up until now, the analysis has assumed ideality for the purposes of clarity; now we must add reality for the purposes of practicality.

These default theories thus themselves depend on expected utility theory.[223] This theory assumes two types of ability—one informational and one procedural.[224] Informational ability assumes that someone making a decision

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[220] These default theories do not require that each party actually know whether the other can reduce or spread risk better; this information should, in principle, be transmitted through price. One should bear in mind that price itself may be a weak signal, given the relatively low likelihood of any particular harm; the magnitude of the risk premium will probably be dwarfed by the price of the goods or services themselves. Still, the assumptions need not extend to detailed knowledge, save that required to get past *Hadley*.

[221] *See* Clayton P. Gillette, *Commercial Relationships and the Selection of Default Rules for Remote Risks*, 19 J. LEGAL STUD. 535, 544 (1990).

[222] *See, e.g.*, Roger G. Noll & James E. Krier, *Some Implications of Cognitive Psychology for Risk Regulation*, 19 J. LEGAL STUD. 747, 764 (1990).

[223] Also known as rational choice theory.

[224] *See, e.g.*, Jules L. Coleman, *Rational Choice and Rational Cognition*, 3 LEGAL THEORY 183, 183 (1997).

knows, or can know, all the available choices and their prices, and knows as well what she wants or needs.[225] In a world of costly information, this assumption is not entirely realistic, though its implications, discussed below, are rather complex. Procedural ability requires that the rational actor be able to use this information fully, computing the likelihood of future events, assessing accurately the outcomes, and deciding on a course of action that will increase maximally her welfare.[226] The rational actor must also use proper Bayesian analysis to determine the expected values for the possible events, thus enabling her to choose rationally.[227]

To accomplish all this, expected utility theory requires that rational actors act according to a range of axioms. These are stated variously,[228] but include, at a minimum, dominance and invariance.[229] Dominance, which resembles the more-familiar Pareto-superiority, holds that if one prefers A to B under at least one set of conditions and thinks A at least equal to B in all others, then one should prefer A to B.[230] Invariance[231] requires that one should come to the same conclusion when given the same problem, however the problem is stated.[232]

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225 *See, e.g.*, LEONARD J. SAVAGE, THE FOUNDATIONS OF STATISTICS 16 (2d ed. 1972); Eisenberg, *supra* note 19, at 213; Thomas S. Ulen, *Cognitive Imperfections and the Economic Analysis of Law*, 12 HAMLINE L. REV. 385, 386 (1989). To qualify the text somewhat, expected choice theory does not require that a rational actor be omniscient. Rather, the actor needs to know only what is relevant to the decision at hand.

226 Welfare, not wealth. Expected utility theory uses subjective, rather than objective, utility, and thus may take into account risk-averse or risk-taking propensities. *See, e.g.*, PAUL ANAND, FOUNDATIONS OF RATIONAL CHOICE UNDER RISK 6–7 (1993).

227 Bayesian analysis is the means by which one calculates the probability of a future event based on its estimated likelihood and the chances of false negatives and false positives. *See, e.g.*, MICHAEL O. FINKLESTEIN & BRUCE LEVIN, STATISTICS FOR LAWYERS 93 (1990); J. FRANK YATES, JUDGMENT AND DECISION MAKING 134–36 (1990).

228 *See, e.g.*, ANAND, *supra* note 226, at 12–15; YATES, *supra* note 227, at 31–32; Colin F. Camerer, *Individual Decision Making*, *in* HANDBOOK OF EXPERIMENTAL ECONOMICS 587, 618–19 (John H. Kagel & Alvin E. Roth eds., 1995).

229 *See, e.g.*, Amos Tversky & Daniel Kahneman, *Rational Choice and the Framing of Decisions*, *in* DECISION MAKING: DESCRIPTIVE, NORMATIVE, AND PRESCRIPTIVE INTERACTIONS 167, 168–69 (David E. Bell et al. eds., 1988) [hereinafter DECISION MAKING]; Paul Slovic, *The Construction of Preference*, 50 AM. PSYCHOLOGIST 364, 364 (1995).

230 *See* ANAND, *supra* note 226, at 13–14, 74–86.

231 Called "extensionality" by Arrow. *See* Kenneth J. Arrow, *Risk Perception in Psychology and Economics*, 20 ECON. INQUIRY 1, 6 (1982).

232 *See, e.g.*, Camerer, *supra* note 228, at 652. Invariance is not, strictly speaking, one of the axioms of expected utility theory, but it is implicit in a number of the more standard

These axioms require rather strong assumptions about behavior, and thus have been criticized rather vigorously. In the words of one theorist of expected utility, "if [expected utility theory] is an empirical, testable theory, then it is, in any conventional sense, untrue."[233] It is thus time to loosen the rather strict assumptions of these default theories about information, looking to various aspects of behavioral decision theory to see whether these assumptions are violated and, if so, whether the violations might affect the analyses. In particular, it is important to determine whether people systematically err, for systematic error can yield results that vary greatly from ideal default theory. The two major branches of behavioral decision theory that are germane here are bounded rationality and cognitive psychology, which are discussed below.

A. *Bounded Rationality*

We can begin by loosening the assumption of perfect, costless information about risk. This requires no real logical leap. Neither information nor its processing comes free of charge, and any rational person will inevitably economize to some degree on information. This was discussed early on by Herbert Simon, who formulated the concept of bounded rationality.[234] This model of thought assumes that we have limits on our ability to acquire and process information—indeed, that it is seldom, if ever, rational to be perfectly rational.[235] As a result, we reach decisions based on less than perfect

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axioms; if, after all, people do vary their preferences according to the manner in which they are expressed, then at some level they are not acting rationally. *See, e.g.*, Robert Sugden, *Rational Choice: A Survey of Contributions from Economics and Philosophy*, 101 ECON. J. 751, 757–61 (1991). In addition, invariance is tied to preference exogeneity—the idea that one's preferences are unrelated to the content of the default rules that apply. *See* Korobkin, *supra* note 197, at 623–24.

[233] ANAND, *supra* note 226, at 19; *see also, e.g.*, Arrow, *supra* note 231, at 1 ("Hypotheses of rationality have been under attack for empirical falsity almost as long as they have been employed in economics."); Sugden, *supra* note 232, at 782 ("Savage's axioms are much stronger than can be justified merely by an appeal to an instrumental conception of rationality.").

[234] *See, e.g.*, HERBERT A. SIMON, MODELS OF BOUNDED RATIONALITY (1982); Herbert A. Simon, *Rationality in Psychology and Economics*, *in* RATIONAL CHOICE: THE CONTRAST BETWEEN PSYCHOLOGY AND ECONOMICS 25 (Robin M. Hogarth & Melvin W. Reder eds., 1987) [hereinafter RATIONAL CHOICE]; Herbert A. Simon, *Rationality as Process and as Product of Thought*, 68 AM. ECON. REV.: PAPERS & PROC. 1 (1978) [hereinafter Simon, *Rationality*]; *see also, e.g.*, Gordon C. Winston, *Imperfectly Rational Choice: Rationality as the Result of a Costly Activity*, 12 J. ECON. BEHAV. & ORG. 67 (1989); Sidney G. Winter, *Satisficing, Selection, and the Innovating Remnant*, 85 Q.J. ECON. 237 (1971).

[235] *See, e.g.*, Winston, *supra* note 234, at 67–68.

information, typically using a grab-bag of shortcuts that, over time, have proved more or less satisfactory in producing sufficiently rational results. In Simon's term, we "satisfice."[236] Satisficing entails potential error, though it seeks to avoid error as far as is practicable.[237]

The question, then, is whether bounded rationality and satisficing could warp one's decisions, so that they would consistently depart from the expected utility ideal.[238] If so, then we might need to rethink the results derived from the default models above. Initially, it would seem that bounded rationality should have no effect on the mean outcome, though it would increase the scatter of results. It has long been pointed out that individuals need not act rationally for microeconomic theory to work; the population need only act as though it consists of rational actors.[239] If, then, errors scatter randomly, one might expect the market to smooth out any individual aberrations.[240] Though the market might fluctuate more as a result of random error, the mean result should, it appears, be the same as with ideal economic actors.[241]

On closer inspection, though, one might see some systematic error as a result of rationed rationality, at least for the sort of risks that might be subject to disproportionality analysis. These risks are at the low end of the probability scale. Thus, it is impossible to underestimate them to the same degree that it is

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236 JAMES G. MARCH & HERBERT A. SIMON, ORGANIZATIONS 140–41 (1958); Simon, *Rationality*, *supra* note 234.

237 In Simon's phrase, we are "*intendedly* rational, but only *limitedly* so." HERBERT A. SIMON, ADMINISTRATIVE BEHAVIOR xxiv (2d ed. 1957) (emphasis in original). Satisficing thus seeks the best decisions practicable under the circumstances—or, at least, sufficiently good decisions, based on some outside benchmark. *See, e.g.*, David M. Grether et al., *The Irrelevance of Information Overload: An Analysis of Search and Disclosure*, 59 S. CAL. L. REV. 277, 287 (1986).

238 Certainly the premises of bounded rationality are inconsistent with expected utility theory. *See, e.g.*, Joshua S. Gans, *On the Impossibility of Rational Choice Under Imperfect Information*, 29 J. ECON. BEHAV. & ORG. 287 (1996).

239 *See, e.g.*, Milton Friedman, *The Methodology of Positive Economics*, *in* ESSAYS IN POSITIVE ECONOMICS 22 (1953); KNIGHT, *supra* note 141, at 67 n.1.

240 As they seem to in experimental markets. *See, e.g.*, Dhananjay K. Gode & Shyam Sunder, *Allocative Efficiency of Markets with Zero Intelligence Traders: Market as a Partial Substitute for Individual Rationality*, 101 J. POL. ECON. 119, 135–36 (1993). Insolvency can affect this result, though, because the market will select against risk-takers whose risks do not pay off; as a result, traders become less risk-taking over time. *See* Douglas W. Diamond, *Reputation Acquisition in Debt Markets*, 97 J. POL. ECON. 828, 841–45 (1989).

241 *See* John Conlisk, *Bounded Rationality and Market Fluctuations*, 29 J. ECON. BEHAV. & ORG. 233, 245–46 (1996). The market might also be affected if random error in valuing potential contracts causes firms that, in an ideal world, would contract, to go to their next-best options.

possible to overestimate them; while one can raise a one percent risk fully ninety-nine percent, one can lower it only one percent. Random error hence will not follow the sort of normal distribution that one might expect from a more moderate risk. Instead, the distribution of error should yield a positively skewed curve, with a long rightward tail and a short leftward tail. More precisely, the distribution should fit a normal curve, truncated leftward.[242] On the other hand, the magnitude of a potentially disproportionate risk, though high, can always be higher still; we thus would expect no rightward truncation of the distribution of magnitudes.[243]

This is significant because a normal distribution has a mean identical to its median, whatever the magnitude of error. For an unskewed distribution of risk or value, then, bounded rationality should not affect the market overall. On the other hand, a curve skewed positively has a mean *higher* than its median.[244] The greater the skewing, the greater the difference between mean and median. An increase in the amount of error will thus affect the mean, so bounded rationality, which should increase error, should also systematically increase the mean predicted risk. With no countervailing downward shift in the mean predicted magnitude, the net effect is overpriced risk.

The result of this is two-fold. Both parties would presumably tend to overestimate the risk of default. The promisor would set too high a price, and the promisee, also overestimating the risk, would tend to pay it. Promisees, however, generally should have worse risk information than promisors. Promisors should thus be able to predict their risks of default more accurately than promisees with fewer bounds on rationality, less error, and less skewing. Given the promisee's greater tendency to overvalue risk, it will be willing to pay more to shift risk, on average, than the promisor will charge; as a result, the promisor should not often be undercompensated for bearing risk, undercutting a general case for disproportionality.

The fact of random scatter does allow for a limited range of possibly disproportionate risks. If random error gives the promisor low risk and magnitude estimates and the promisee high risk and magnitude estimates, the promisor may grossly undercharge for shifting the risk. This may not, however, be very worrisome. Even though undercharging will sometimes

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242 The underlying risk data may not in fact be distributed normally. Even if the data are distributed asymmetrically, though, truncating the distribution negatively will still affect the mean in the same way.

243 The magnitude could even go below zero, if the default would prove beneficial. In any event, the distribution of magnitudes would be far enough to the right that one would expect no leftward truncation.

244 *See, e.g.*, JAY L. DEVORE, PROBABILITY AND STATISTICS FOR ENGINEERING AND THE SCIENCES 15 (1982).

occur, in the long run it should be washed out by instances where the promisor overcharged for assuming risk. Indeed, it should more than wash out, given the skewed risk distributions. If the promisee cannot get a refund when it overpays for risk, it is hard to see why the promisor should get a refund when it is underpaid, in light of the general tendency to overcompensate promisors. So bounded rationality analysis suggests that disproportionality has little, if any, role in modifying consequential damages.

B. *Behavioral Decision Theory*

Bounded rationality introduces the possibility of error into our hitherto determinedly rational analysis. But bounded rationality is itself rooted in fundamental rationality. After all, even bounded rationality assumes that the satisficing party will act rationally, given its constraints on information and its processing; it may err, but its errors will tend to be random.[245] The next step is to challenge this assumption. What if we err *systematically* in processing the information we have? If we do, then expected utility theory may not prove very helpful in predicting behavior, whether individually or collectively. As much of the default analysis above was based on the assumption that we would be able to react sensibly to information—that is, it was based on expected utility theory—its conclusions might be open to question. Perhaps there is some role for disproportionality after all.

Hence the next pages of this Article, which discuss a number of the findings of cognitive psychology and apply them to the problem at hand—that of risk allocation and risk pricing. Suppose that contracting parties do undervalue the sort of risk that disproportionality covers—low-probability, high-magnitude risk. Then the party taking on the risk will tend to charge too low a risk premium. If it self-insures, it will find itself in arrears, over the long run; if it buys insurance, it will pay more than it takes in (this effect compounded by the need for the insurer to profit).[246] We might thus be able to justify attenuating the promisor's liability as a means of correcting for its systematic underpricing of risk.[247] The question, then, is whether cognitive psychology and experimental economics lead us to conclude that this systematic

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[245] Though it may be satisfied, not with the best choice under the circumstances, but with a satisfactory choice in terms of some preset standard.

[246] In principle, the third-party insurer could also make cognitive errors and underprice risk, which would tend to wash out this effect. In practice, though, this should not happen, given learning effects which overcome cognitive biases. *See infra* Part IV.B.7.

[247] The case would be especially strong if the promisor, but not the promisee, underpriced the risk.

error actually occurs.

Before we examine the literature, we need to consider briefly whether this exercise is appropriate. Objections to it fall into two main camps. First, market forces will correct for cognitive error, so economics and law need not worry about individual missteps. Second, the law should seek to advance efficiency, so it should ignore or even counter any irrational, inefficient behavior, rather than accommodate it. While these objections ought not dissuade lawyers from applying cognitive insights to legal analysis, they should still be addressed.

The first objection acknowledges that individuals may err, often grievously, in their perceptions and assessments, but declines to extend that acknowledgment to populations. Populations, the argument goes, behave as though they are composed of perfectly cognizant rational maximizers.[248] Put otherwise, the market corrects for individual error.[249] Promisors will tend to respond, not to individual caprices, but to collective outcomes, and so we would see no economic effect from cognitive error. Any attempt to meddle with market forces might then prove inefficient, as well as, perhaps, paternalistic.[250] In the long run, indeed, such interference might cushion weak, inefficient businesses from the weeding-out of the market, thus diminishing long-run efficiency in the economic world.[251]

This objection lacks substance. It assumes—indeed, requires—that individual errors wash out. This may be true for random errors which should distribute more or less normally.[252] Though the variation might be higher, the mean should not be affected. Perhaps these errors might safely be ignored, at

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[248] *See, e.g.*, Friedman, *supra* note 239; GEORGE STIGLER, THE THEORY OF PRICE 6 (3d ed. 1966); Gary S. Becker, *Irrational Behavior and Economic Theory*, 70 J. POL. ECON. 1, 6–9 (1962).

[249] A result shown by computer simulations of markets. *See, e.g.*, Gode & Sunder, *supra* note 240, at 135–36; Karim Jamal & Shyam Sunder, *Bayesian Equilibrium in Double Auctions Populated by Biased Heuristic Traders*, 31 J. ECON. BEHAV. & ORG. 273, 273–87 (1996). *See generally* Charles R. Plott, *Rational Choice in Experimental Markets*, *in* RATIONAL CHOICE, *supra* note 234, at 117 (experimental markets generally correct for cognitive errors).

[250] *See, e.g.*, Anthony T. Kronman, *Paternalism and the Law of Contracts*, 92 YALE L.J. 763, 763 (1983).

[251] *See, e.g.*, Gillette, *supra* note 221, at 576–78; Jack Hirshleifer, *Economics from a Biological Viewpoint*, 20 J. L. & ECON. 1, 9–10 (1977); Thomas H. Jackson, *The Fresh-Start Policy in Bankruptcy Law*, 98 HARV. L. REV. 1393, 1417 (1985); *see also, e.g.*, Friedman, *supra* note 239 (natural selection); Armen A. Alchian, *Uncertainty, Evolution, and Economic Theory*, 58 J. POL. ECON. 211, 211 (1950) (same).

[252] Though skewing or truncation may cause even random error to shift the mean. *See supra* notes 242–44 and accompanying text.

least from the vantage of the market as a whole.[253] But this is not so for systematic errors, which shift the mean result, rather than just the distribution.[254] Then, too, market forces can be weak, and cognitive errors may prove quite strong indeed, so the market might not efface cognitive error; natural selection might not in fact affect failure rate.[255] One would thus expect to see collective departures from expected utility theory where cognitive error is relevant, which, in fact, one does.[256] This objection hence seems less than substantial.

So does the second objection, which looks more at the individual effects of correcting for cognitive error. The argument from efficiency is, to begin with, somewhat dubious. It is based in part on the assumption that an allocation of risk based on rational choice theory will be efficient—that is, that it will lead to the optimal levels of precaution and risk spreading. For the parties to an

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[253] *See, e.g.*, Schwartz & Wilde, *supra* note 19, at 1426–27. *But cf.* Gertrud M. Fremling & John R. Lott, Jr., *The Bias Towards Zero in Aggregate Perceptions: An Explanation Based on Rationally Calculating Individuals*, 34 ECON. INQUIRY 276, 293 (1996) (errors in identifying relationships will not cancel out).

[254] *See, e.g.*, George A. Akerlof & Janet L. Yellen, *Can Small Deviations from Rationality Make Significant Differences to Economic Equilibria?*, 75 AM. ECON. REV. 708, 708–20 (1985); *see also, e.g.*, Schwartz & Wilde, *supra* note 19, at 1429–30 (cognitive error may lead to policy problem that may not be corrected by market).

[255] *See, e.g.*, John Haltiwanger & Michael Waldman, *Rational Expectations and the Limits of Rationality: An Analysis of Heterogeneity*, 75 AM. ECON. REV. 326, 328, 336 (1985) (markets may not prove rational); Hersh Shefrin & Meir Statman, *Behavioral Capital Asset Pricing Theory*, 29 J. FIN. & QUANTITATIVE ANALYSIS 323, 364–65 (1994) (noise traders not necessarily selected against by capital market); Ulrich Witt, *Firms' Market Behavior Under Imperfect Information and Economic Natural Selection*, 7 J. ECON. BEHAV. & ORG. 265, 265 (1986) (firm's survival rate unaffected by profit maximization).

More precisely, cognitive error will not necessarily, or even usually, figure much in natural selection. After all, a good many errors are random, in light of bounded rationality. Natural selection against cognitive error requires enough significant error to provide evolutionary pressure, and enough feedback to allow for learning and adaptation. Infrequent cognitive error makes learning difficult at best, giving the market little chance to encourage evolution. *See infra* Part IV.B.7. Beyond these learning effects, widespread error should lead only to random, thus non-evolutionary, selection.

[256] *See* Amos Tversky & Daniel Kahneman, *Rational Choice in the Framing of Decisions*, *in* RATIONAL CHOICE, *supra* note 234, at 67, 91; Thomas Russell & Richard Thaler, *The Relevance of Quasi Rationality in Competitive Markets*, 75 AM. ECON. REV. 1071, 1074, 1080–81 (1985). *See generally* Howard Latin, *"Good" Warnings, Bad Products, and Cognitive Limitations*, 41 UCLA L. REV. 1193, 1255–57 (1994) (surveying literature); Robert J. Shiller, *Human Behavior and the Efficiency of the Financial System* (last modified Sept. 23, 1997) <http://www.econ.yale.edu/~shiller/handbook.html> (market demonstrations of cognitive error).

agreement to allocate risk efficiently, though, they must correctly perceive the risk and act rationally in accordance with their perceptions. Cognitive error will skew these actions, leading to inefficient risk allocation. If anything, then, taking cognitive error into account should yield more, rather than less, efficient outcomes.[257]

Furthermore, one should be wary of too great a difference between is and ought. Law can, of course, be aspirational, and be none the worse for that.[258] Certainly we do not want to tailor all our laws to actual behavior; consider, for example, the effects on traffic. Still, at least in the realm of contract, there remains something to be said for modeling law on practice. That was Karl Llewellyn's goal in the U.C.C.,[259] and it is behind the problem-solving approach to default rules.[260] Indeed, one may ask whether an aspirational approach to law is entirely desirable where, as here, cognitive error is in part due to excessive cost; a rule that encourages uneconomic information costs seems facially inefficient. Beyond efficiency, one may also ask whether a rule greatly divergent from real cognitive capability is entirely fair, if cognitive error is widespread (as, indeed, it is).[261]

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[257] Indeed, it has been suggested that cognitive error can have large *macroeconomic* effects. For example, though the expected utility model predicts that consumer welfare is far more affected by base growth rate than by business cycles, departures from expected utility can yield massive welfare effects for cycles. *See* James Pemberton, *Trends Versus Cycles: Asymmetric Preferences and Heterogeneous Individual Responses*, 17 J. MACROECONOMICS 241, 253 (1995); *see also* Akerlof & Yellen, *supra* note 254.

[258] *Cf.* Robert Browning, *Andrea del Sarto*, *in* THE POETICAL WORKS OF ROBERT BROWNING 346, 346 (Horace E. Scudder ed. 1895) ("Ah, but a man's reach should exceed his grasp, or what's a heaven for?").

[259] *See, e.g.*, Kerry Lynn Macintosh, *Liberty, Trade, and the Uniform Commercial Code: When Should Default Rules Be Based on Business Practices?*, 38 WM. & MARY L. REV. 1465, 1466 (1997); Zipporah Batshaw Wiseman, *The Limits of Vision: Karl Llewellyn and the Merchant Rules*, 100 HARV. L. REV. 465, 470–71 (1987).

[260] *See supra* Part III.A. Of course, the problem-solving approach is not free from difficulty; still, its basic insight—that efficiency is enhanced when default rules mirror the ideal bargain of most parties—is sound, as far as it goes. *See supra* Part III.B.1. (critique of problem-solving default rules). This is especially true where default rules alter basic preferences, as is true for the *Hadley* rule. *See* Korobkin, *supra* note 197, at 637–41.

[261] *See, e.g.*, Cass R. Sunstein, *Behavioral Analysis of Law*, 64 U. CHI. L. REV. 1175, 1178 (1997); Richard L. Hasen, Comment, *Efficiency Under Informational Asymmetry: The Effect of Framing on Legal Rules*, 38 UCLA L. REV. 391, 400 (1990). On fairness in economic analysis, see, for example, H. PEYTON YOUNG, EQUITY IN THEORY AND PRACTICE (1994); EDWARD E. ZAJAC, POLITICAL ECONOMY OF FAIRNESS (1995); Colin F. Camerer & George Loewenstein, *Information, Fairness, and Efficiency in Bargaining*, *in* PSYCHOLOGICAL PERSPECTIVES ON JUSTICE: THEORY AND APPLICATIONS 155, 155–79

Nor would a legal regime that takes account of cognitive error be weird or anomalous. Indeed, current law considers cognitive capacity and informational asymmetry in myriad contexts, whether in common law or statute. Consumer protection statutes, such as the Magnuson-Moss Warranty Act,[262] the Fair Credit Reporting Act,[263] or other federal and state consumer acts,[264] tend to require rather specific information disclosure in especially clear formats. These acts were thus intended to overcome some cognitive deficiencies of otherwise ignorant or gullible consumers. Turning to common law, we find various defenses to contract formation, most notably infancy,[265] incapacity,[266] and non-disclosure.[267] These illustrations should suffice to dispel any intimations of novelty about a legal attempt to rectify cognitive error.

In sum, the initial arguments against using cognitive psychology and experimental economics to help fashion legal rules seem unpersuasive. The next questions, addressed below, are whether the cognitive evidence points to errors in risk estimation or perception, and, if so, whether the evidence supports any role for disproportionality as part of the law of consequential damages. Behavioral decision theory describes a plethora of cognitive errors, many of which are not pertinent here.[268] Those of interest here are availability, cognitive dissonance, over-optimism, prospect theory, framing, and regret theory. After these are discussed, this Article will consider further whether cognitive analysis can be brought to bear on the question of disproportionality, and what results it yields.

(Barbara A. Mellers & Jonathan Baron eds., 1993); Daniel Kahneman et al., *Fairness and the Assumptions of Economics*, *in* RATIONAL CHOICE, *supra* note 234, at 101; *cf.* Bruno S. Frey & Werner W. Pommerehne, *On the Fairness of Pricing—An Empirical Survey Among the General Population*, 20 J. ECON. BEHAV. & ORG. 295, 297–98 (1993) (rise in prices to adjust for excess demand considered unfair by about 80% of respondents).

262 15 U.S.C. §§ 2301–2312 (1994).

263 15 U.S.C. §§ 1681–1681t (1994).

264 For useful guides to these, see, for example, HOWARD J. ALPERIN & ROLAND F. CHASE, CONSUMER LAW (1986); DEE PRIDGEN, CONSUMER PROTECTION AND THE LAW (1986).

265 *See, e.g.*, 1 FARNSWORTH, *supra* note 44, §§ 4.2–4.5.

266 *See, e.g.*, RESTATEMENT (SECOND) OF CONTRACTS § 15(1) (1979).

267 *See, e.g.*, RESTATEMENT (SECOND) OF CONTRACTS § 161 (1979); COOTER & ULEN, *supra* note 190, at 245–49; Kronman, *supra* note 190.

268 For useful reviews of a range of cognitive models, see, for example, RATIONAL CHOICE, *supra* note 234; Camerer, *supra* note 228.

1. *Availability*

The first of these cognitive problems, availability, in a sense arises from bounded rationality. One of the common solutions to the need to satisfice is adopting shortcuts to analysis—playing the odds, using a rule of thumb, or the like. Most adages (and, for that matter, most prejudices) are rooted in these simplifying tactics. If these techniques—heuristics, in the language of cognitive psychology—draw on the most pertinent facts, they may do well enough, even though they are not perfect. If, however, they draw on irrelevant or misleading information, or come to perverse conclusions on the information they use, then they can prove harmful, all the more so because of their simplicity.[269]

The availability heuristic focuses on one type of simplifying error—the tendency to pay heed to memorable, rather than pertinent, facts.[270] Thus, for instance, the perceived frequencies of a range of hazards have been shown to correlate with the amount and vividness of newspaper reporting, but not with the objective probabilities of the hazards.[271] Similarly, people tend to underestimate the frequencies of relatively drab causes of death, such as diabetes, and overestimate the frequencies of relatively striking causes, such as floods.[272] Personal experience of disasters, egoistically vivid, also induce greater precautions.[273] Even security analysts, who have rather a large stake in cool, unbiased behavior, are prone to overrate vivid information.[274]

Availability may well affect risk assessment, perhaps greatly—but how? It is hard to see any systematic bias in availability, which may cause some to

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269 As H.L. Mencken observed, "there is always a well-known solution to every human problem—neat, plausible, and wrong." H.L. Mencken, *The Divine Afflatus*, *in* PREJUDICES: SECOND SERIES 155, 158 (1920).

270 *See, e.g.*, Amos Tversky & Daniel Kahneman, *Judgment Under Uncertainty: Heuristics and Biases*, 185 SCIENCE 1124, 1127-28 (1974); Amos Tversky & Daniel Kahneman, *Availability: A Heuristic for Judging Frequency and Probability*, 5 COGNITIVE PSYCHOL. 207, 208 (1973) [hereinafter Tversky & Kahneman, *Availability*].

271 *See* Barbara Combs & Paul Slovic, *Newspaper Coverage of Causes of Death*, 56 JOURNALISM Q. 837, 843 (1979).

272 *See* Sarah Lichtenstein et al., *Judged Frequency of Lethal Events*, 4 J. EXPERIMENTAL PSYCHOL.: HUM. LEARNING & MEMORY 551, 551, 553 (1978); Paul Slovic et al., *Facts Versus Fears: Understanding Perceived Risk*, *in* JUDGMENT UNDER UNCERTAINTY: HEURISTICS AND BIASES 463, 466-67 (Daniel Kahneman et al. eds., 1982) [hereinafter JUDGMENT].

273 *See* Neil D. Weinstein, *Effects of Personal Experience on Self-Protective Behavior*, 105 PSYCHOL. BULL. 31, 31 (1989).

274 *See* Werner F.M. De Bondt & Richard H. Thaler, *Do Security Analysts Overreact?*, 80 AM. ECON. REV.: PAPERS & PROC. 52, 52 (1990).

overestimate a given risk and others to underestimate it, depending on personal experience or information. Though some vivid risks might be magnified, less vivid risks would be reduced; potentially disproportionate risks fall into both categories.[275] Generally, though, one would expect low-frequency risks to be understated, rather than overstated; by definition, they seldom occur, and their rarity (and thus unavailability) may lead them to be displaced and slighted.[276] Initially, then, one would expect undervaluation, which might support a role for disproportionality.

An exception might come if the promisor's heuristics differ from the promisee's. If the promisor is less prone to availability bias than the promisee, then it will not underestimate the risk to the same extent (or perhaps at all) and thus will need little, if any, protection from disproportionality. Promisors that deal very frequently in remote risk, such as common carriers, thus may well not be prone to availability errors. Their very large volume of similar transactions may make even improbable events quotidian.[277] Otherwise, though, the parties should tend mutually to undervalue risk—the very problem that might warrant some intervention ex post.

2. *Cognitive Dissonance*

Cognitive dissonance rests on the observation that people prefer consistency to inconsistency. Dissonant beliefs are uncomfortable, so, the theory goes, people will attempt to reduce dissonance.[278] One can do this without harm; if, for instance, one smokes, but reads repeatedly that smoking causes cancer, one can stop smoking and thus end the dissonance between information and action. Alternatively, one can seek out information that suggests that smoking does not

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[275] A great many of the risks actually found in disproportionality cases are relatively ordinary, if infrequent—breach of warranty, construction delays, and the like. *See supra* Part II.B. The risks may be more vivid to promisors, who see them more often than promisees; still, the risks may also have become routine to promisors.

[276] *See, e.g.*, Paul Slovic et al., *Response Mode, Framing, and Information-Processing Effects in Risk Assessment*, *in* NEW DIRECTIONS FOR METHODOLOGY OF SOCIAL AND BEHAVIORAL SCIENCE: QUESTION FRAMING AND RESPONSE CONSISTENCY 21, 24 (Robin M. Hogarth ed., 1982); Valerie S. Folkes, *The Availability Heuristic and Perceived Risk*, 15 J. CONSUMER RES. 13 (1988) (consumer estimates of product risk).

[277] Indeed, if the promisor sees low-frequency, high-magnitude risks often, availability may cause the promisor to overestimate risk. *See, e.g.*, Noll & Krier, *supra* note 222, at 769–71.

[278] *See, e.g.*, LEON FESTINGER, A THEORY OF COGNITIVE DISSONANCE 3 (1957). *See generally* ELLIOT ARONSON, THE SOCIAL ANIMAL 175–245 (7th ed. 1995) (extended discussion of cognitive dissonance).

cause cancer, or pooh-pooh the information that conflicts with one's smoking. The latter two possibilities may, however, prove unfortunate, as they may lead to inferior decisionmaking—for instance, by causing one to overweight convenient information, or search out only information that conforms to one's predispositions. One may thus see an attempt to maximize one's psychological well-being, and hence one's utility, though at some tangible cost.[279]

This phenomenon can have a good many consequences, economic and otherwise.[280] For instance, it may explain the persistence of advertising unrelated to product quality. We buy in large part to satisfy our needs and desires; advertisements often feed into these by suggesting that we will be happier, healthier, brighter, more attractive people if we buy whatever the advertiser is selling. Purchasing the goods feeds into our desire to avoid cognitive dissonance, by letting us satisfy our wishes—and by creating dissonance if we would otherwise feel disappointed in our lack of success.[281] As a corollary, those who have bought goods avoid reading advertisements for other brands, but read more for the brand chosen, thus reinforcing their choices and slighting others.[282]

Cognitive dissonance might figure in consequential damages to the extent that the parties to a potential agreement come to the negotiations with a bias toward success. This would be true particularly for relational contracts, in which the parties engage repeatedly with each other and thus may have developed their own norms of behavior (or may have bought into pre-existing norms of the trade).[283] There the parties may have invested a good deal in

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[279] *See, e.g.*, George A. Akerlof & William T. Dickens, *The Economic Consequences of Cognitive Dissonance*, 72 AM. ECON. REV.: PAPERS & PROC. 307, 308 (1982); Örn B. Bodvarsson, *The Welfare Effects of Disclosure Under Cognitive Dissonance*, 19 ATLANTIC ECON. J. 33 (1991).

[280] For a discussion of cognitive dissonance and morality, see Matthew Rabin, *Cognitive Dissonance and Social Change*, 23 J. ECON. BEHAV. & ORG. 177 (1994).

[281] *See, e.g.*, ARTHUR A. LEFF, SWINDLING AND SELLING 167–75 (1976); Akerlof & Dickens, *supra* note 279, at 316–17; *cf.* Overton v. Anheuser-Busch Co., 517 N.W.2d 308, 309–10 (Mich. Ct. App. 1994) (unsuccessful suit for violation of consumer protection statute and breach of contract, on theory that purchasing and consuming beer did not bring about buyer's fantasies as in manufacturer's television commercials).

[282] *See* Danuta Ehrlich et al., *Postdecision Exposure to Relevant Information*, 54 J. ABNORMAL & SOC. PSYCHOL. 98 (1957) (study of new car owners).

[283] For the classic study of relational contracting, see Stewart Macaulay, *Non-Contractual Relations in Business: A Preliminary Study*, 28 AM. SOC. REV. 55 (1963). *See also, e.g.*, IAN R. MACNEIL, THE NEW SOCIAL CONTRACT 71–117 (1980); Lisa Bernstein, *Opting Out of the Legal System: Extralegal Contractual Relations in the Diamond Industry*, 21 J. LEGAL STUD. 115 (1992); Jay M. Feinman, *Relational Contract and Default Rules*, 3 S.

trusting each other, and so may be inclined to disregard information that undermines this trust. A good many of the disproportionality cases are basically relational, whether because the parties had long-standing business relations or because the parties operated in the same trade and in the same locality, and thus would have had reference to the same trade norms.[284] For single-shot transactions, or for first transactions, the effect might be lower; there information about risk might be more salient (invoking the availability heuristic), and the parties would be less likely to have beliefs about performance that might provoke dissonance.[285] Even there, though, the potential parties might tend to underweight their risks, finding it uncomfortable to contemplate the effects of breach (much as workers in dangerous industries tend to undervalue the effects of safety precautions).[286] Cognitive dissonance thus should tend to lead to the undervaluation of risk and, as a result, its underpricing, particularly in the relational world.[287]

CAL. INTERDISC. L.J. 43 (1993); Ian R. Macneil, *Economic Analysis of Contractual Relations: Its Shortfalls and the Need for a "Rich Classificatory Apparatus"*, 75 NW. U. L. REV. 1018 (1981); Richard E. Speidel, *Court-Imposed Price Adjustments Under Long-Term Supply Contracts*, 76 NW. U. L. REV. 369 (1981).

[284] *See, e.g.*, International Ore & Fertilizer Corp. v. SGS Control Servs., Inc., 38 F.3d 1279 (2d Cir. 1994) (cargo inspection); Sundance Cruises Corp. v. American Bureau of Shipping, 7 F.3d 1077 (2d Cir. 1993) (vessel inspection); Cayuga Harvester, Inc. v. Allis-Chalmers Corp., 465 N.Y.S.2d 606 (App. Div. 1983) (sale of farm equipment). The role of norms in contracting has received a good deal of scholarly attention of late, though the topic is old; indeed, a good deal of Llewellyn's effort in the drafting of Article 2 of the U.C.C. was directed toward reinforcing commercial norms of behavior (in, for instance, such areas as the role of trade usage). On Llewellyn, see, for example, Macintosh, *supra* note 259; Wiseman, *supra* note 259. *See also, e.g.*, Lisa Bernstein, *Merchant Law in a Merchant Court: Rethinking the Code's Search for Immanent Business Norms*, 144 U. PA. L. REV. 1765 (1996); Jody S. Kraus, *Legal Design and the Evolution of Commercial Norms*, 26 J. LEGAL STUD. 377 (1997). *See generally* Symposium, *Law, Economics, & Norms*, 144 U. PA. L. REV. 1643 (1996).

[285] Professors Schwartz and Wilde have suggested that dissonance is unlikely in the case of consumer purchases of new items. *See* Schwartz & Wilde, *supra* note 19, at 1436. On the other hand, cognitive dissonance springs into force immediately after one makes a bet at a horse race, which is a classic single-shot transaction. *See* Robert E. Knox & James A. Inkster, *Postdecision Dissonance at Post Time*, 8 J. PERSONALITY & SOC. PSYCHOL. 319 (1968).

[286] *See* Akerlof & Dickens, *supra* note 279, at 308.

[287] A potential party to an agreement might also distort information *before* coming to a conclusion in order to help the leading choice prevail over its rivals. This effect has been observed experimentally, where it proved more powerful than cognitive dissonance. J. Edward Russo et al., *The Distortion of Information During Decisions*, 66 ORG. BEHAV. & HUM. DECISION PROCESSES 102 (1996). In a contracting world of trust, this would lead, as

Before leaving this topic, though, we should consider one criticism of cognitive dissonance in the economic realm. Professor Gillette has suggested that cognitive dissonance, whatever its role for individual behavior, should prove largely, if not entirely, irrelevant for commercial activity.[288] He argues that commercial actors do not ordinarily face the stark choices of, say, workers in hazardous industries, who routinely face considerable risks. Thus the need of those in commerce for cognitive dissonance is correspondingly low.[289] Further, he suggests that businesses have available to them fairly cheap methods of allocating the risk of remote events, so they need not feel the pressure to conform, which is characteristic of cognitive dissonance.[290]

Gillette's critiques tell only part of the story. Though very seldom does the fate of a business ride on any one contract, more often might the fate of an employee rest on productivity success, or other performance-driven measures.[291] These employees have powerful incentives to avoid failure, and thus may be prone to cognitive dissonance; and as they act, so acts the business.[292] Nor does the presence of cheap risk-shifting mechanisms—here, insurance—efface dissonance; indeed, the failure to seek insurance has been pointed to as an economic consequence of cognitive dissonance.[293] Though Gillette's points serve usefully to remind us of the constraints on cognitive dissonance, they do not remove it from our range of relevant cognitive errors.

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would cognitive dissonance, to the overvaluation of information suggesting performance by the promisor and the corresponding undervaluation of information indicating non-performance.

[288] *See* Gillette, *supra* note 19, at 548–49; *see also* Akerlof & Dickens, *supra* note 279, at 308 ("In most economic transactions there is no gain to rationalizing and cognitive dissonance plays no role.").

[289] *See* Gillette, *supra* note 19, at 549–50.

[290] *See id.*

[291] As might be predicted from agency theory; given that businesses need to act through agents, they must counter the tendency of agents to act for themselves, rather than for the business, by aligning the agents' incentives with those of the business. *See, e.g.*, George P. Baker et al., *Compensation and Incentives: Practice vs. Theory*, 43 J. FIN. 593 (1988) (evaluating various incentive systems); Jensen & Meckling, *supra* note 204, at 308.

[292] *See, e.g.*, Samuel B. Bacharach et al., *The Organizational Transformation Process: The Micropolitics of Dissonance Reduction and the Alignment of Logics of Action*, 41 ADMIN. SCI. Q. 477 (1996) (finding cognitive dissonance in airline executives and workers); Bernard Burnes & Hakeem James, *Culture, Cognitive Dissonance and the Management of Change*, 15 INT'L J. OPERATIONS & PRODUCTION MGMT. 14, 26 (1995) (finding cognitive dissonance in manufacturing firm).

[293] *See* Akerlof & Dickens, *supra* note 279, at 308, 317.

3. *Over-Optimism*

One of the early cognitive errors pointed out in the literature is over-optimism—the tendency to underestimate potential liabilities.[294] Its relevance is patent: if the parties to an agreement underestimate the risk of breach, then they will tend to assign it too low a value and provide too small an allowance for it in the contract. The party left with the risk thus will not be able to insure against the risk adequately without drawing on other resources, or, alternatively, will be able to insure against only a part of the risk. In either case one might argue for some degree of risk-splitting of the sort contemplated in disproportionality analysis.

Perhaps some degree of optimism is part of human nature, so that we can carry out our daily rounds with a minimum of wasteful brooding.[295] In any event, over-optimism is all but ubiquitous. The phenomenon is present in the inexpert—college students,[296] consumers,[297] and drivers,[298] for instance. But over-optimism is prevalent in businesspeople and businesses as well. For example, a good many empirical studies have shown that entrepreneurs,

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[294] As usual, Adam Smith was first off the mark, at least for the world of economics. *See* ADAM SMITH, AN INQUIRY INTO THE NATURE AND CAUSES OF THE WEALTH OF NATIONS 124 (Edwin Cannan ed., Modern Library 1994) (1776).

Note that the definition in the text does not address overestimating expected gains. While there is some evidence that this occurs, there is also evidence, discussed below, that people tend to be risk-averse with respect to gains. *See infra* Part IV.B.4. This difference may be explained by a combination of anchoring and compartmentalization, leading to overly optimistic forecasts and overly cautious behavior. *See* Daniel Kahneman & Dan Lovallo, *Timid Choices and Bold Forecasts: A Cognitive Perspective on Risk Taking*, 39 MGMT. SCI. 17, 17 (1993). In any event, consequential damages and disproportionality focus on the losing side of risk, so the somewhat variant data about gains are immaterial for this Article.

[295] Interestingly, the clinically depressed are very nearly the only people who are not, as a group, prone to over-optimism. *See, e.g.*, Lauren B. Alloy & Lyn Y. Abramson, *Judgment of Contingency in Depressed and Nondepressed Students: Sadder but Wiser?*, 108 J. EXPERIMENTAL PSYCHOL. 441, 441 (1979).

[296] *See, e.g.*, Neil D. Weinstein, *Unrealistic Optimism About Future Life Events*, 39 J. PERSONALITY & SOC. PSYCHOL. 806 (1980) (college students think themselves much more likely than average to like their jobs and own their own homes, and much less likely than average to drink to excess or divorce).

[297] *See, e.g.*, W. KIP VISCUSI & WESLEY A. MAGAT, LEARNING ABOUT RISK 94–95 (1987) (only 3% of consumers think their homes pose greater than average risks for a child's poisoning with drain cleaner).

[298] *See, e.g.*, Ola Svenson, *Are We All Less Risky and More Skillful Than Our Fellow Drivers Are?*, 47 ACTA PSYCHOLOGICA 143, 146 (1981) (93% of drivers think they drive better than average).

particularly successful ones, are highly over-optimistic (or, put otherwise, have very low risk-aversion).[299] Nor is this behavior limited to individuals; businesses also display over-optimism.[300]

The causes of over-optimism are many, and bear directly on the problem of consequential damages and disproportionality. Perhaps the foremost, at least in the literature, is overconfidence. People tend to overestimate the probability that they are correct.[301] This overconfidence causes them to overestimate the likelihood of more probable events and underestimate the likelihood of less probable events. Most risks are relatively improbable, so overconfidence attaches too little weight to them, yielding over-optimism.[302] Another way to connect overconfidence with over-optimism is through variance.

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[299] *See, e.g.*, KENNETH R. MACCRIMMON & DONALD A. WEHRUNG, TAKING RISKS 99, 194–95, 260–65 (1986); James M. Buchanan & Roger L. Faith, *Entrepreneurship and the Internalization of Externalities*, 24 J.L. & ECON. 95, 98 (1981) (entrepreneurial optimism); Manfred J. Holler et al., *Decisions on Strategic Markets—An Experimental Study*, 8 SCANDINAVIAN J. MGMT. 133, 133 (1992) (successful entrepreneurs have low risk-aversion); Kenneth R. MacCrimmon & Donald A. Wehrung, *Characteristics of Risk Taking Executives*, 36 MGMT. SCI. 422, 433 (1990) (same); Leslie E. Palich & D. Ray Bagby, *Using Cognitive Theory to Explain Entrepreneurial Risk-Taking: Challenging Conventional Wisdom*, 10 J. BUS. VENTURING 425 (1995) (entrepreneurial optimism).

[300] *See, e.g.*, Richard Z. Gooding et al., *Fixed Versus Variable Reference Points in the Risk-Return Relationship*, 29 J. ECON. BEHAV. & ORG. 331, 345 (1996) (firms tend to be over-optimistic about expected return); Jakob BrØchner Madsen, *Tests of Rationality Versus an "Over Optimist" Bias*, 15 J. ECON. PSYCHOL. 587 (1994) (manufacturing firms tend to be over-optimistic about expected production).

[301] More formally, they tend to assume too narrow a confidence interval for their probability estimates. *See, e.g.*, Daniel Kahneman & Amos Tversky, *Intuitive Prediction: Biases and Corrective Procedures*, *in* 12 TIMS STUDIES IN THE MANAGEMENT SCIENCES: FORECASTING 313, 321–26 (S. Makridakis & S.C. Wheelbright eds., 1979); Gordon F. Pitz, *Subjective Probability Distributions for Imperfectly Known Quantities*, *in* KNOWLEDGE AND COGNITION 29, 34–41 (Lee W. Gregg ed., 1974). This behavior extends well beyond psychology students to CIA analysts, psychologists, and others. *See, e.g.*, R.M. Cambridge & R.C. Shreckengost, *Are You Sure? The Subjective Probability Assessment Test* (CIA 1978), *described in* Sarah Lichtenstein et al., *Calibration of Probabilities: The State of the Art to 1980*, in JUDGMENT, *supra* note 272, at 306, 314; Stuart Oskamp, *Overconfidence in Case-Study Judgments*, *in* JUDGMENT, *supra* note 272, at 287 (psychologists); Baruch Fischhoff et al., *Knowing With Certainty: The Appropriateness of Extreme Confidence*, 3 J. EXPERIMENTAL PSYCHOL.: HUM. PERCEPTION & PERFORMANCE 552 (1977) (students); Shiller, *supra* note 256 (investors). *See generally* YATES, *supra* note 227, at 75–108 (overview); Baruch Fischhoff, *Debiasing*, *in* JUDGMENT, *supra* note 272, at 422, 439–40 (same).

[302] *See* Madsen, *supra* note 300, at 589–90. Cognitive dissonance would magnify this effect. *See supra* Part IV.B.2.

Overconfidence amounts to a tendency to assign too low a variance to one's probability distributions. The point of reducing risk is to reduce the magnitude of these distributions; if they are too low to start with, one is unlikely to engage in the optimal level of precaution.[303] Finally, one may explain over-optimism with availability. Because people tend to overvalue their own experience in assessing risk, and because most people tend not to have experienced rare events, they will tend to undervalue rare events; since most potentially disproportionate outcomes to contracts are quite rare, people will slight them when they assess probability.[304]

As these causes suggest, over-optimism leads those prone to it to undervalue remote risk. To some extent, familiarity may efface over-optimism, at least if the over-optimism is an artifact of availability. The effect may thus be somewhat asymmetric, proving more prominent in those relatively inexperienced with remote risk; if so, disproportionality is not as good an idea when the promisor is less prone to over-optimism than the promisee.[305] Nevertheless, to the extent that the parties are over-optimistic, they may fail to provide properly for shifting low-frequency risks in their agreements, thus providing some basis for disproportionality analysis post hoc.

4. *Prospect Theory*

Economic analysts of risk have tended to make either of two assumptions about how economic actors will respond to risk. One assumption is risk-neutrality. This arises from the notion that people generally want to maximize their expected returns. A risk-averse person will forego risky endeavors with a positive expected value; a risk-seeking person will take on risky endeavors with a negative expected value (but high potential gains).[306] The more common alternative is risk-aversion, which is based on the observations that we seek to maximize utility, rather than wealth, and that wealth has diminishing marginal utility.[307] As a result, risky gains come at a steeper discount than ordinary

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303 *See* Camerer, *supra* note 228, at 594–95.

304 *See* Slovic et al., *supra* note 272, at 468–70; *see also supra* Part IV.B.1. (availability heuristic).

305 Or at least the promisor should not be able to place as much of the risk on the promisee as it would were the over-optimism evenly distributed.

306 *See, e.g.*, William M. Landes & Richard A. Posner, *The Positive Economic Theory of Tort Law*, 15 GA. L. REV. 851, 867–68 (1981) (applying and defending risk-neutral analysis).

307 On diminishing marginal utility, see, for example, KUR SHAPIRA, RISK TAKING: A MANAGERIAL PERSPECTIVE 7–8 (1995); Kenneth J. Arrow, *The Theory of Risk Aversion, in*

probability would suggest, leading to the possibility that one might choose a certain outcome over a probabilistically superior gamble.[308]

Risk-neutrality and risk-aversion are both consistent with expected utility theory; a risk-neutral or risk-averse person is trying to maximize her subjective utility, though not, perhaps, her objective wealth. In contrast, prospect theory[309] looks beyond expected utility. People presumably do try to maximize utility, but, as experiments have repeatedly shown, tend to fail. Using these observations, prospect theory attempts to model how people actually decide.

The core of prospect theory is a set of statements about risk. People are risk-averse, but only as to gains; people are risk-seeking with respect to losses; and people react more strongly to losses than to gains ("loss- aversion").[310] These propositions may be illustrated with the results of one experiment. When the subjects were asked whether they would prefer a certain gain of £3000 or an eighty percent chance of gaining £4000, eighty percent of the subjects chose the certainty—even though the certain result was worth less than the uncertain result. This illustrates risk-aversion with respect to gains; by itself, though, it is consistent with general risk-aversion. When, however, the subjects were asked whether they would prefer a certain *loss* of £3000 or an eighty percent chance

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ESSAYS IN THE THEORY OF RISK-BEARING 90, 90–91 (1971).

[308] *See, e.g.*, COOTER & ULEN, *supra* note 190, at 45–47; John W. Pratt, *Risk Aversion in the Small and in the Large*, 32 ECONOMETRICA 122 (1964). The phenomenon was remarked on rather earlier than these, though. *See* ADAM SMITH, THE THEORY OF MORAL SENTIMENTS 212–17 (D.D. Raphael & A.L. Macfie eds., Clarendon Press 1976) (1759).

It should be noted that risk-aversion is linked to the relative sizes of the gamble and of the player's wealth; as the latter rises with respect to the former, the player will tend toward risk-neutrality. *See, e.g.*, Jeffrey J. Rachlinski, *Gains, Losses, and the Psychology of Litigation*, 70 S. CAL. L. REV. 113, 117 n.13 (1996).

[309] Called this because, in the argot of the originators of prospect theory, a lottery is a prospect (presumably of gain or loss). *See, e.g.*, Daniel Kahneman & Amos Tversky, *Prospect Theory: An Analysis of Decision Under Risk*, 47 ECONOMETRICA 263, 274 (1979) [hereinafter Kahneman & Tversky, *Prospect*].

[310] *See, e.g.*, Daniel Kahneman & Amos Tversky, *Choices, Values, and Frames*, 39 AM. PSYCHOLOGIST 341, 341–42 (1984) [hereinafter Kahneman & Tversky, *Choices*]; Kahneman & Tversky, *Prospect*, *supra* note 309, at 279; George A. Quattrone & Amos Tversky, *Contrasting Rational and Psychological Analyses of Political Choice*, 82 AM. POL. SCI. REV. 719, 721 (1988). More precisely, one must add to these propositions the use of reference points for determining gains and losses (rather than the use of net wealth) and the presence of the availability heuristic for low-probability events. *See, e.g.*, Colin F. Camerer & Howard Kunreuther, *Decision Processes for Low Probability Events: Policy Implications*, 8 J. POL'Y ANALYSIS & MGMT. 565, 572 (1989); Kahneman & Tversky, *Prospect*, *supra* note 309, at 274, 282–83; Amos Tversky & Daniel Kahneman, *Loss Aversion in Riskless Choice: A Reference-Dependent Model*, 106 Q.J. ECON. 1039, 1039–40 (1991).

of *losing* £4000, ninety-two percent chose the risk—even though the net loss for the risk exceeded the certain loss.[311] Far from showing risk-aversion, this shows risk-*seeking*, though with respect to losses. Further, the percentage choosing the counterintuitive result for losses exceeded that for gains, suggesting relative loss-aversion (given that the amounts in question were identical).[312]

The evidence for prospect theory is robust, and need not be recounted at length here.[313] More interesting is its application to commerce. Most studies directed toward business managers and commercial situations vindicate prospect theory. For example, financial planners are risk-averse for gains, but risk-seeking for losses.[314] Investment club members show risk-aversion as to gains.[315] Foreign exchange managers are loss-averse.[316] Indeed, financially troubled firms, their shareholders, and their creditors show loss-aversion and

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311 *See* Kahneman & Tversky, *Prospect*, *supra* note 309, at 268.

312 Indeed, it has been estimated that losses are weighted about twice as heavily as gains. *See* Richard H. Thaler et al., *The Effect of Myopia and Loss Aversion on Risk Taking: An Experimental Test*, 112 Q.J. ECON. 647, 648 (1997); *see also, e.g.*, Avi Fiegenbaum, *Prospect Theory and the Risk-Return Association: An Empirical Examination in 85 Industries*, 14 J. ECON. BEHAV. & ORG. 187, 195 (1990) (finding about a three-fold difference).

313 *See, e.g.*, Colin F. Camerer, *An Experimental Test of Several Generalized Utility Theories*, 2 J. RISK & UNCERTAINTY 61 (1989) (prospect theory provides the strongest explanation of violations of expected utility theory); Peter C. Fishburn & Gary A. Kochenberger, *Two-Piece Von Neumann-Morgenstern Utility Functions*, 10 DECISION SCI. 503 (1979); Kahneman & Tversky, *Choices*, *supra* note 310; Kahneman & Tversky, *Prospect*, *supra* note 309; *cf.* Raymond C. Battalio et al., *Testing Between Alternative Models of Choice Under Uncertainty: Some Initial Results*, 3 J. RISK & UNCERTAINTY 25 (1990) [hereinafter Battalio et al., *Testing*] (qualified support for prospect theory, but not in all experiments). Interestingly, risk-seeking for losses and risk-aversion for gains have been found in rats as well as humans, suggesting a substantial degree of generality for prospect theory. *See, e.g.*, Raymond C. Battalio et al., *Animals' Choices Over Uncertain Outcomes: Some Initial Experimental Results*, 75 AM. ECON. REV. 597, 597–98 (1985); Don N. MacDonald et al., *Animals' Choices Over Uncertain Outcomes: Further Experimental Results*, 103 ECON. J. 1067 (1991).

314 *See* Michael J. Roszkowski & Glenn E. Snelbecker, *Effects of "Framing" on Measures of Risk Tolerance: Financial Planners Are Not Immune*, 19 J. BEHAV. ECON. 237, 244–45 (1990).

315 *See* Gerrit Antonides & Nico L. van der Sar, *Individual Expectations, Risk Perception and Preferences in Relation to Investment Decision Making*, 11 J. ECON. PSYCHOL. 227 (1990). This observation is, however, consistent with both prospect theory and expected utility theory.

316 *See* Benn Steil, *Corporate Foreign Exchange Risk Management: A Study in Decision Making Under Uncertainty*, 6 J. BEHAV. DECISION MAKING 1, 20–21 (1993).

risk-seeking with respect to losses.[317] Other studies of commercial situations show much the same effects.[318]

The situation at issue here—how parties to an agreement value low-probability, high-magnitude risk—is potentially affected by prospect theory, as opposed to expected utility theory. Under prospect theory, these risks would generally be undervalued, as people tend to be risk-seeking with respect to losses. On the other hand, low-frequency events tend to be given greater weight than their actual probabilities would suggest, subject to the tendency of availability theory to eliminate these risks from consideration altogether. Furthermore, loss-aversion implies that the parties will look kindly on options that eliminate risk, even if they are not actuarially sound.[319]

These considerations point in different directions, and thus may prove a bit frustrating in practice. The most probable result overall is mild underpricing of risk. Where the availability heuristic leads to the underweighting of remote risk, loss-aversion will likely be countered. Then the general tendency to seek risk for losses will operate, causing the parties to the contract to undervalue the

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317 *See* Richard A. D'Aveni, *Dependability and Organizational Bankruptcy: An Application of Agency and Prospect Theory*, 35 MGMT. SCI. 1120, 1121–24 (1989); *see also, e.g.*, Avi Fiegenbaum & Howard Thomas, *Attitudes Toward Risk and the Risk-Return Paradox: Prospect Theory Explanations*, 31 ACAD. MGMT. J. 85, 85–86, 97 (1988); Marc Jegers, *Prospect Theory and the Risk-Return Relation: Some Belgian Evidence*, 34 ACAD. MGMT. J. 215, 215–16 (1991).

318 *See, e.g.*, Shlomo Benartzi & Richard H. Thaler, *Myopic Loss Aversion and the Equity Premium Puzzle*, 110 Q.J. ECON. 73, 75 (1995) (loss-aversion for equity investments); Alan Collins et al., *Prospect Theory and Risk Preferences of Oregon Seed Producers*, 73 AM. J. AGRIC. ECON. 429, 429–34 (1991) (risk-seeking for losses); Gooding et al., *supra* note 300 (risk-aversion for gains and risk-seeking for losses); Dan J. Laughhunn et al., *Managerial Risk Preferences for Below-Target Returns*, 26 MGMT. SCI. 1238, 1247–48 (1980) (risk-seeking for losses by corporate managers); Hersh Shefrin & Meir Statman, *The Disposition to Sell Winners Too Early and Ride Losers Too Long: Theory and Evidence*, 40 J. FIN. 777, 785–90 (1985) (loss-aversion for equity investments); Thaler et al., *supra* note 312 (loss-aversion for experimental portfolio management); Amos Tversky & Daniel Kahneman, *The Framing of Decisions and the Psychology of Choice*, 211 SCIENCE 453, 453–55 (1981) (risk-aversion for gains and risk-seeking for losses); *see also* Shiller, *supra* note 256 (financial demonstrations of prospect theory). *But see, e.g.*, Elke U. Weber & Richard A. Milliman, *Perceived Risk Attitudes: Relating Perception to Risky Choice*, 43 MGMT. SCI. 123, 123, 133–34, 142 (1997) (no change in risk preferences for losses versus gains for individuals). Weber's results may be explained in part by the frequent feedback in her experiment, which would tend to exaggerate loss-aversion (which she found). *See infra* Part IV.B.7.

319 *See* Amos Tversky & Daniel Kahneman, *Advances in Prospect Theory: Cumulative Representation of Uncertainty*, 5 J. RISK & UNCERTAINTY 297, 316 (1992). This is related to insurance framing, an important offshoot of prospect theory. *See infra* notes 338–48 and accompanying text.

remote risks involved in performance. If, on the other hand, the parties overweight the remote risk, then loss-aversion can operate, encouraging the parties to insure against the risk. Availability here should tend to cause the parties to underweight, rather than overweight, the risk of default, so the net effect should be undervaluation, which provides a role for disproportionality analysis. A notable exception would arise if the promisor did not underweight the risk of non-performance, but the promisee did. Then, much like under pure availability analysis, the promisor should be able to value the risk relatively well, and should not garner judicial sympathy if in fact it errs.

Prospect theory does not explain all violations of expected utility theory—for example, it does not address preference reversals or ambiguity.[320] Nor by itself does it explain why people respond differently to similar problems with risk; there one must resort to framing theory, discussed below. Pending that discussion, though, prospect theory suggests broadly that, more often than not, risk-seeking for losses will cause the parties to undervalue the risks they face.

5. *Framing*

Prospect theory shows that one's response to risk depends greatly on whether the risk is for gain or for loss. This suggests a possible corollary to prospect theory: how a risk is described—is framed—will determine, in part, how one treats it. This corollary does not necessarily follow; perhaps people see through descriptions, penetrating to the essence of a risky situation. If so, then the manner in which a problem is described would be immaterial, save for the careless or lazy, and thus the law could safely ignore those who failed to perceive the problem correctly.[321] Expected utility theory assumes that this corollary is false and that rational people will respond identically to identical risks, however described.[322] This assumption seems innocuous; though some of the other axioms of expected utility theory may be empirically dubious, this one, at least, should hold. But it does not.

The corollary above is referred to as a framing problem.[323] Framing is

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[320] *See, e.g.*, Paul J. H. Schoemaker, *Are Risk-Attitudes Related Across Domains and Response Modes?*, 36 MGMT. SCI. 1451, 1451 (1990).

[321] Except where the failure is caused by a lack of capacity, for which contract law already makes allowances.

[322] A characteristic termed invariance. *See, e.g.*, Camerer, *supra* note 228, at 652; Tversky & Kahneman, *supra* note 256, at 69; *see also supra* notes 231–32 and accompanying text.

[323] *See, e.g.*, Kahneman & Tversky, *Choices*, *supra* note 310, at 343–44; Tversky & Kahneman, *supra* note 256, at 74–75. Framing is a corollary of prospect theory, rather than a free-standing theory, because framing is material only if we differ in our responses to gains

found widely, but perhaps is starkest when shown with identical wagers. In the classic experiment, Kahneman and Tversky asked two groups different questions. One group was asked to choose between two methods to stem an outbreak of a rare disease, expected to kill six hundred people. One program would save two hundred people; the other had a one-third chance of saving all six hundred, and a two-thirds chance of saving none. That group chose the certain outcome seventy-two percent of the time, which fits with risk-aversion for gains, as predicted by prospect theory. The other group was told about the same disease, but was given different choices. The first choice would let four hundred people die; the second had a one-third chance of letting none die, and a two-thirds chance of letting all die. Here, only twenty-two percent chose the certainty; the great majority preferred the gamble, with its chance of letting no one die—as one would expect, given prospect theory's prediction of risk-taking for losses.[324] The different responses are particularly striking because the two groups were asked, in essence, the same things; not only was the certain choice equal in value to the less certain choice, but the questions asked the first group matched exactly the questions asked the second. The questions differed, however, in framing; the first group was asked about gains, and the second about losses. An insignificant difference, if expected utility theory is accurate—but consider the huge variation in the two groups' responses.[325]

Framing occurs in a wide range of contexts, many of commercial importance.[326] Commercial buyers show differing inclinations to take on risk, depending on how the risk is framed and on their internal frames—that is, their internal benchmarks for gauging risk.[327] They also adjust their price targets, depending on whether the buying decision is framed as a price rise or a price

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and losses. The non-linearity of the preference curve described by prospect theory gives framing a role in describing behavior.

[324] *See* Amos Tversky & Daniel Kahneman, *The Framing of Decisions and the Psychology of Choice*, 211 SCIENCE 453, 453 (1981).

[325] Even more remarkably, when some subjects were given both sets of questions, their answers often differed. Even after this inconsistency was explained to them, many of the subjects stuck to their answers. *See* Kahneman & Tversky, *Choices*, *supra* note 310, at 343; Tversky & Kahneman, *supra* note 229, at 76. It should be added that not all studies show robust framing effects. *See, e.g.*, N.S. Fagley & Paul M. Miller, *The Effects of Decision Framing on Choice of Risky vs. Certain Options*, 39 ORG. BEHAV. & HUM. DECISION PROCESSES 264 (1987).

[326] *See generally* Rachlinski, *supra* note 308, at 124–25 (collecting studies).

[327] *See* Christopher P. Puto et al., *Risk Handling Strategies in Industrial Vendor Selection Decisions*, J. MARKETING, Winter 1985, at 89, 91, 97; William J. Qualls & Christopher P. Puto, *Organizational Climate and Decision Framing: An Integrated Approach to Analyzing Industrial Buying Decisions*, 26 J. MARKETING RES. 179, 190–91 (1989).

drop.[328] Other financial contexts in which framing has been observed include hiring,[329] financial planning,[330] project commitment,[331] and retail pricing.[332] Framing theory may thus be applied helpfully to the problem of allocating low-frequency, high-magnitude risk by contract.[333]

At the time of contracting, then, how will the promisor and promisee view these risks—as gains, or as losses? It is logical to assume initially that both sides would view these as losses, and accordingly would tend to seek risk, rather than fear it. Against this, though, is the tendency to overestimate remote risk and

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[328] *See* Christopher P. Puto, *The Framing of Buying Decisions*, 14 J. CONSUMER RES. 301, 311–13 (1987).

[329] *See* Greg W. Marshall et al., *Risk Taking in Sales-Force Selection Decisions: The Impact of Decision Frame and Time*, 12 PSYCHOL. & MARKETING 265, 281 (1995). Sales managers did sometimes prefer the riskier candidate in the gain frame and the safer candidate in the loss frame, both of which appear to contradict prospect theory. If, however, one assumes that people discount gain less sharply than loss over time, then these preferences could reverse. *See id.* at 268–69, 281–82.

[330] *See* Roszkowski & Snelbecker, *supra* note 314.

[331] *See* Thomas S. Bateman & Carl P. Zeithaml, *The Psychological Context of Strategic Decisions: A Model and Convergent Experimental Findings*, 10 STRATEGIC MGMT. J. 59, 69–70 (1989); Gregory B. Northcraft & Margaret A. Neale, *Opportunity Costs and the Framing of Resource Allocation Decisions*, 37 ORG. BEHAV. & HUM. DECISION PROCESSES 348, 354–55 (1986); David J. Sharp & Stephen B. Salter, *Project Escalation and Sunk Costs: A Test of the International Generalizability of Agency and Prospect Theories*, J. INT'L BUS. STUDIES, 1st Quarter 1997, at 101, 103–04, 115–17.

[332] *See* Mark J. Machina, *Choice Under Uncertainty: Problems Solved and Unsolved*, *in* CURRENT ISSUES IN MICROECONOMICS 12, 41 (John D. Hey ed., 1989); Joel E. Urbany & Peter R. Dickson, *Evidence on the Risk-Taking of Price-Setters*, 15 J. ECON. PSYCHOL. 127, 127–32, 144–47 (1994); Joel E. Urbany & Peter R. Dickson, *Prospect Theory and Pricing Decisions*, 19 J. BEHAV. ECON. 69, 77–79 (1990). Urbany and Dickson, like Marshall and colleagues, observed some apparent departures from prospect theory; here, too, they can be explained by taking into account time, including the possibility of long-term gain as against short-term loss.

[333] It should be added that prospect theory and framing may not explain fully the mechanics of risk behavior. Sim Sitkin and colleagues have suggested that risk propensity must be added to reconcile a range of experimental and archival results. *See, e.g.*, Sim B Sitkin & Amy L. Pablo, *Reconceptualizing the Determinants of Risk Behavior*, 17 ACAD. MGMT. REV. 9, 30–34 (1992); Sim B Sitkin & Laurie R. Weingart, *Determinants of Risky Decision-Making Behavior: A Test of the Mediating Role of Risk Perceptions and Propensity*, 38 ACAD. MGMT. J. 1573, 1585–90 (1995); *see also, e.g.*, Eric H. Kessler et al., *Object Valence as a Moderator of the Framing Effect on Risk Preference*, 30 J. ECON. BEHAV. & ORG. 241 (1996). This work does not suggest that prospect theory is valueless; rather, it suggests that prospect theory is only a part of the complex process of responding to risk. Thus, for example, the range of cognitive theories discussed in this Article.

react more, rather than less, vigorously to it.[334] This tension may be eased when one considers the specific context in which this problem arises. One normally expects those about to enter into a contract to focus on the performance, rather than on the possibility of breach; after all, most contracts are performed, and, *pace* Holmes, most people look at a contract as more than an opportunity to recover damages.[335] But low-frequency, high-magnitude risks ordinarily fall under the second part of *Hadley*, so both the promisor and the promisee have brought the risks to the fore.[336] They might still disregard the risks, focusing instead on the high probability of performance.[337] Perhaps more likely, though, particularly for single-shot transactions, is greater attention toward the risk, with the higher valuations that should result.

There is one more framing problem that arises here: the insurance frame. Contracts that allocate risk can be looked at as insurance contracts, in whole or in part, with the cost of shifting the risk treated as an insurance premium. Indeed, some form contracts, most notably for carriers, do this explicitly, by combining a general waiver of liability with the opportunity to buy a measure of protection in case of breach. The risk premium thus pays for either third-party insurance or self-insurance. Framing a risk problem as an insurance problem does seem to affect the result. One study asked some subjects whether they preferred a certain loss of $5 or a one-tenth of one percent chance of losing $5000, and other subjects whether they would prefer to pay an insurance premium of $5 or face a one-tenth of one percent chance of losing $5000. These questions are functionally identical, as an insurance premium is in essence a certain loss. Nevertheless, while sixty-five percent of the subjects chose the certain loss when it was framed as insurance, only twenty percent chose it when it was framed as a loss.[338] The result persisted even when

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[334] *See, e.g.*, Kahneman & Tversky, *Prospect*, *supra* note 309, at 280–84.

[335] *Compare* Holmes, *supra* note 129, at 462 ("The duty to keep a contract at common law means a prediction that you must pay damages if you do not keep it—and nothing else."), *with* U.C.C. § 2-609 cmt. 1 (1995) (stating that "the essential purpose of a contract between commercial men is actual performance and they do not bargain merely for a promise, or for a promise plus the right to win a lawsuit").

[336] More accurately, this sort of risk does not flow naturally from the breach, but still should be known to the promisor. If the promisor has not been given actual notice, then the promisor would have to be familiar with the risk from common trade practice or the like. In any event, the promisor must at least know generally of the risk and its magnitude for disproportionality even to be an issue. Should a party know of the underlying rule, the party's underlying preferences may also be altered. *See generally* Korobkin, *supra* note 197 (showing status quo effect experimentally).

[337] Particularly in relational contracts or in the middle of extended courses of dealing.

[338] *See* Paul Slovic et al., *Response Mode, Framing, and Information-Processing Efforts*

subjects already asked the problem in one context were asked the problem in the other.[339]

Insurance framing seems to undercut disproportionality analysis, when the risk is dealt with in an insurance frame. Promisees seem much more willing to shift risk when they can do so by purchasing insurance, rather than by taking a certain loss. If anything, promisees seem to overprice low-probability risk when put as insurance, as the study above shows.[340] We might conclude that framing counts in our context; if the promisor offers to deal with risk by separating the contract into performance and insurance contracts, or otherwise by making clear the insurance aspect of the deal, then it should be able to secure a reasonable price for the insurance, and should not be able to invoke disproportionality. If the risk is not put as insurance, though, the parties are likely to prove risk-seeking, and the contract will probably close with too small an allowance made for risk.

To round out this discussion of the insurance frame, however, two more experimental observations must be added to the mix. One relates insurance to ambiguity, based on a cognitive theory that posits ambiguity aversion—that is, a tendency to overweight risk depending on its degree of uncertainty, to make the Knightian distinction.[341] This aversion is most marked at low frequencies, largely dissipating, or even reversing, as frequencies near unity.[342] Notably, though, experimental participants serving as promisors charged considerably

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in Risk Assessment, *in* DECISION MAKING, *supra* note 229, at 152, 157 [hereinafter Slovic et al., *Response*]; *see also* John C. Hershey & Paul J. H. Schoemaker, *Risk Taking and Problem Context in the Domain of Losses: An Expected Utility Analysis*, 47 J. RISK & INS. 111, 111, 130 (1980) (showing risk-aversion in insurance frame); Robin M. Hogarth & Howard Kunreuther, *Ambiguity and Insurance Decisions*, 75 AM. ECON. REV.: PAPERS & PROC. 386 (1985) (same); Paul J. H. Schoemaker & Howard C. Kunreuther, *An Experimental Study of Insurance Decisions*, 46 J. RISK & INS. 603, 616 (1979) (same); Paul Slovic et al., *Preferences for Insuring Against Probable Small Losses: Insurance Implications*, 44 J. RISK & INS. 237, 253–56 (1977) (same).

339 *See* Slovic et al., *Response*, *supra* note 338, at 157–58.

340 *See id.*; *see also* Hogarth & Kunreuther, *supra* note 338, at 388.

341 *See, e.g.*, Hillel J. Einhorn & Robin M. Hogarth, *Ambiguity and Uncertainty in Probabilistic Inference*, 92 PSYCHOL. REV. 433, 454–59 (1985). The distinction between risk, for which one has a probability distribution, and uncertainty, for which one does not, comes from KNIGHT, *supra* note 141, at 233–34.

It should be noted that ambiguity aversion remains open to dispute. Fox and Tversky, for example, have linked it to comparisons with more certain events, rather than to any free-standing aversion. *See* Craig R. Fox & Amos Tversky, *Ambiguity Aversion and Comparative Ignorance*, 110 Q.J. ECON. 585, 599 (1995). For our purposes, though, the basic principles are not especially controversial.

342 *See* Hogarth & Kunreuther, *supra* note 338, at 388.

more to bear remote risks than the participants serving as promisees were willing to pay in order to shift the risks.[343] This finding suggests that promisors may tend to overprice insurance for remote risks, further undercutting the argument that they might have been undercompensated for bearing these risks.[344] The other observation comes from a study of experimental markets in self-insurance. Though the participants showed a substantial tendency to overvalue remote risk, they showed a lower and lower tendency to do so as they went through repeated trials. The markets thus transmitted enough information to allow the participants to correct for a good deal of their error.[345] In practice, many, perhaps most, promisors will self-insure for potential consequential damages.[346] Thus, promisors who rarely face low-frequency risks may tend to overprice them greatly, but will offer more reasonable prices over time. This learning behavior will be discussed further below.[347] For the moment, it is sufficient to note that frequent market participants are likely to adjust their prices enough to yield something like an efficient risk-allocation price.[348]

Framing thus leaves us with two rather distinct outcomes. On the one hand, risks framed as insurance will probably be shifted at a fair price, undermining the case for post hoc disproportionality adjustments. On the other, risks not framed as insurance will probably be undervalued by the parties to the contract, leading to an inadequate risk premium and an insufficient allowance for

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[343] *See id.* at 388–89.

[344] And also explaining the tendency not to buy insurance for remote risks; the insurance may simply be overpriced. *See, e.g.*, HOWARD KUNREUTHER ET AL., DISASTER INSURANCE PROTECTION: PUBLIC POLICY LESSONS 7, 36–41 (1978) (discussing the low use of earthquake insurance). This tendency might also be explained in part by cognitive dissonance, given one's investment in living where one lives.

[345] *See* Jason F. Shogren, *The Impact of Self-Protection and Self-Insurance on Individual Response to Risk*, 3 J. RISK & UNCERTAINTY 191 (1990). This effect may be due in part to a blunting of negative affect by the participants, as people who tend to react strongly to loss tend to be willing to pay relatively high amounts for insurance. *See* Haim Mano, *Risk-Taking, Framing Effects, and Affect*, 57 ORG. BEHAV. & HUM. DECISION PROCESSES 38, 55–57 (1994).

[346] *See supra* note 133 (general unavailability of liability insurance for consequential damages).

[347] *See infra* Part IV.B.7.

[348] In addition, a recent study suggests that this relative attraction for insurance stems mainly from its investment appeal; people like to invest in insurance if they can salvage something from a bad situation. *See* Robert A. Connor, *More than Risk Reduction: The Investment Appeal of Insurance*, 17 J. ECON. PSYCHOL. 39 (1996). If so, then the investment appeal would likely be greatest when frequent risk-creating activity gives some actual return.

insurance. This divergence suggests that framing should figure into a court's judgment about whether a promisor should successfully be able to assert disproportionality to avoid paying consequential damages.

6. *Regret-Aversion*

Another way to look at risk-avoidance and similar behaviors is through regret theory. This branch of cognitive theory is built on the unremarkable premise that we have a tendency to kick ourselves when a decision goes wrong—not entirely because of the result, but also because there was something else we could have done that would have turned out better (or so we think). Second-guessing seems a part of human nature, as some reflection on our own experiences and those of others will show. From this observation, regret theorists posit that people measure the value of the outcome of their decisions in part by referring to the values of the rival outcomes—to what might have happened had they made other decisions. Related to this is regret-aversion proper; that is, people dislike regret enough that they will adjust their preferences to avoid it.[349] Thus, for example, as Allais suggested, more people prefer a certain award of one hundred million francs to a gamble with a ten percent chance of yielding five hundred million francs, an eighty-nine percent chance of yielding one hundred million francs, and a one percent chance of yielding nothing—even though, as a moment with the calculator will show, the gamble is worth significantly more than the certainty.[350] Or, as Loomes and Sugden have observed, a loss due to a rise in income tax is less painful than a lost bet on a horse race.[351]

Regret theory thus provides an alternative to prospect theory. Under prospect theory, the problem of preference reversal is explained as a violation of procedure invariance—that is, a violation of the principle that similar risks will be acted upon similarly, however they are described.[352] In contrast, regret theory explains preference reversal as a violation of transitivity—the principle

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[349] *See, e.g.*, Richard P. Larrick & Terry L. Boles, *Avoiding Regret in Decisions with Feedback: A Negotiation Example*, 63 ORG. BEHAV. & HUM. DECISION PROCESSES 87, 87 (1995).

[350] *See* Maurice Allais, *Le Comportement de l'Homme Rationnel devant le Risque: Critique des Postulats et Axiomes de l'Ecole Americaine*, 21 ECONOMETRICA 503, 527 (1953).

[351] *See* Graham Loomes & Robert Sugden, *Regret Theory: An Alternative Theory of Rational Choice Under Uncertainty*, 92 ECON. J. 805, 808 (1982).

[352] *See, e.g.*, Kahneman & Tversky, *Choices*, *supra* note 310, at 343-44.

that if A is preferred to B and B to C, then A will be preferred to C.[353] Finally, regret theory focuses on affect—regret, disappointment, and the like—while prospect theory focuses on risk assessment.[354]

If regret-aversion exists, then its effects on risk assessment could be significant. Those subject to regret-aversion would, for instance, be willing to buy insurance rather than experience regret; the regret from a small loss through paying the insurance premium might outweigh the regret from the large, though improbable, loss that would come about from an uncompensated default.[355] Insurance would be most appealing with a low risk of default and a high magnitude of potential loss, for there the difference between a losing wager (default) and the certain outcome (insurance) is far greater than the difference between a winning wager (performance) and the certain outcome. Indeed, the promisee should be willing to avert risk by paying more than an actuarially sound premium to shift the risk to the promisor. Of course, if the promisor were also subject to regret, the aversion would be mirrored, with no real net effect. If, however, the promisor is better at spreading risk, it may feel less regret when a risk becomes an unfortunate certainty. More concretely, claims may pinch less if they come about once a day than if they come about once a year. Thus, the promisor might be more willing to take on risk than the promisee, and should ordinarily be able to exact fair compensation.[356] To some extent, then, comparative regret theory suggests a limited role for disproportionality; if the promisee is willing to pay a reasonable risk premium in order to shift the risk to the promisor, then the promisor has little claim for

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[353] *See, e.g.*, Camerer & Kunreuther, *supra* note 310, at 576; Robert Sugden, *An Axiomatic Foundation for Regret Theory*, 60 J. ECON. THEORY 159, 165–67 (1993); Amos Tversky et al., *The Causes of Preference Reversal*, 80 AM. ECON. REV. 204, 205–06 (1990). Intransitivity comes about under regret theory because an individual wishes to avoid the possibility of large losses, but may be willing to take small chances; accordingly, it is possible to arrange gambles in a circle so that each gives a lower-magnitude loss than the next, thus making it preferable. *See, e.g.*, Loomes & Sugden, *supra* note 351, at 815.

[354] *See, e.g.*, Larrick & Boles, *supra* note 349, at 87; Marcel Zeelenberg et al., *Consequences of Regret Aversion: Effects of Expected Feedback on Risky Decision Making*, 65 ORG. BEHAV. & HUM. DECISION PROCESSES 148, 148–49 (1996). For more general expressions of regret theory, see, for example, David E. Bell, *Regret in Decision Making Under Uncertainty*, 30 OPERATIONS RES. 961 (1982); Graham Loomes, *Further Evidence of the Impact of Regret and Disappointment in Choice Under Uncertainty*, 55 ECONOMICA 47 (1988).

[355] *See, e.g.*, Loomes & Sugden, *supra* note 351, at 814.

[356] Some of this analysis resembles that used under insurance framing, a theory with a very different set of assumptions. *See supra* notes 338–48 and accompanying text.

relief on the grounds that it should not be expected to bear the risk.[357]

The remaining question, then, is whether regret-aversion exists. Unfortunately, that question is difficult to answer. Its early advocates made a purely theoretical case for it.[358] The early experimental studies generally supported regret-aversion, at least tepidly.[359] Since then, though, the results have been mixed. A number of experiments have shown that regret-aversion is slight to non-existent, and two—the first two that focused on losses—showed, if anything, the reverse result to that predicted by regret theory.[360] On the basis of these studies, the regret-aversion effect was explained as driven by the manner of display, arising mainly when the range of negative outcomes was scattered rather than lumped.[361] Not, it would seem, a useful construct.

Still, there is other evidence that supports regret-aversion, at least in some form. For example, investors tend to sell rising stocks and hold falling stocks; this has been explained as, on the one hand, an attempt to minimize the regret of holding past a market peak, and, on the other, an attempt to avoid realizing the regret of losing money.[362] The failure of foreign exchange managers to

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[357] Under the right circumstances, a different effect of regret-aversion might be obtained—an unwillingness to act, for fear that one will regret the effects of one's actions. *See, e.g.*, Ruth M. Corbin, *Decisions that Might Not Get Made*, *in* COGNITIVE PROCESSES IN CHOICE AND DECISION BEHAVIOR 47, 56–57 (Thomas S. Wallsten ed., 1980) [hereinafter COGNITIVE PROCESSES]; Daniel Kahneman & Amos Tversky, *The Psychology of Preferences*, SCI. AM., Jan. 1982, at 160, 170, 173; Ilana Ritov & Jonathan Baron, *Reluctance to Vaccinate: Omission Bias and Ambiguity*, 3 J. BEHAV. DECISION MAKING 263 (1990); William Samuelson & Richard Zeckhauser, *Status Quo Bias in Decision Making*, 1 J. RISK & UNCERTAINTY 7 (1988). Here, however, the potential promisee must make some act that will increase risk; the question is who should bear the added risk.

[358] *See, e.g.*, Bell, *supra* note 354; David E. Bell, *Risk Premiums for Decision Regret*, 29 MGMT. SCI. 1156 (1983); Loomes & Sugden, *supra* note 351; Graham Loomes & Robert Sugden, *Some Implications of a More General Form of Regret Theory*, 41 J. ECON. THEORY 270 (1987).

[359] *See, e.g.*, Loomes, *supra* note 354; Graham Loomes et al., *Observing Violations of Transitivity by Experimental Methods*, 59 ECONOMETRICA 425, 437 (1991); Graham Loomes et al., *Are Preferences Monotonic? Testing Some Predictions of Regret Theory*, 59 ECONOMICA 17 (1992); Graham Loomes & Robert Sugden, *Testing for Regret and Disappointment in Choice Under Uncertainty*, 97 ECON. J. 118 (1987).

[360] *See* Battalio et al., *Testing*, *supra* note 313, at 38–40 (no regret-aversion for losses and weak regret-aversion for gains); Robert A. Josephs et al., *Protecting the Self from the Negative Consequences of Risky Decisions*, 62 J. PERSONALITY & SOC. PSYCHOL. 26 (1992); *see also, e.g.*, David W. Harless, *Actions versus Prospects: The Effect of Problem Representation on Regret*, 82 AM. ECON. REV. 634 (1992); Tversky et al., *supra* note 353.

[361] *See* Camerer, *supra* note 228, at 654–56.

[362] *See, e.g.*, Chinmoy Ghosh, *A Regret-Theoretic Explanation of Corporate Dividend*

engage in probabilistic hedging has also been explained as due to regret avoidance.[363] Further, the predicted effects of feedback on regret avoidance have been confirmed, independent of whether the risk was high or low or whether the risk was of a gain or a loss.[364] To be sure, the financial studies may be explained using classic prospect theory as well as regret avoidance, so their support may be termed equivocal. Still, the experimental work seems inconclusive, as must be this analysis. Perhaps the safest conclusion is conditional: if regret avoidance exists, then it undermines to some extent disproportionality analysis. Whether this condition precedent has come about, or ever will, is another, and an open, question.

7. *Learning and Error*

The net effect of the cognitive points above is a tendency for promisors and promisees to undervalue risk. This tendency is not ubiquitous; it does not appear, for instance, when risks are framed as insurance, or when parties often face the types of risks at issue. Still, behavioral decision theory does suggest a role for disproportionality analysis, a role that will be explored further in the conclusion to this Article. Before we leave this discussion of behavioral decision theory, though, we need to deal with one last objection to using cognitive analysis. People can learn to eliminate cognitive errors, as a moment's reflection will show.[365] If so, then the law might wish to encourage learning by making no allowances for errors.[366] The balance of this Part will thus deal with the scope and effect of learning as a means of overcoming cognitive biases.

First, the good news: learning works, at least some of the time and for some of the subjects. Very often, simulated markets show rapid convergence toward a Bayesian ideal, as the traders gain more experience.[367]

Policy, 20 J. BUS. FIN. & ACCT. 559 (1993) (borrowing to pay dividends explained by regret-aversion); Shefrin & Statman, *supra* note 318, at 785–90; *cf.* Meir Statman, *A Behavioral Framework for Dollar-Cost Averaging*, 22 J. PORTFOLIO MGMT. 70, 74 (1995) (explaining dollar-cost averaging in part as a means of avoiding regret).

[363] *See* Steil, *supra* note 316, at 4–8.

[364] *See* Zeelenberg et al., *supra* note 354; *see also* Larrick & Boles, *supra* note 349.

[365] As Professor Latin puts it, "People can learn to improve some kinds of decisions in some kinds of circumstances; otherwise teachers would be out of work." Latin, *supra* note 256, at 1252.

[366] *See, e.g.*, Richard E. Nisbett et al., *The Use of Statistical Heuristics in Everyday Inductive Reasoning*, 90 PSYCHOL. REV. 339, 340 (1983); Alan Schwartz, *Proposals for Products Liability Reform: A Theoretical Synthesis*, 97 YALE L.J. 353, 381–82 (1988).

[367] *See, e.g.*, Marc Knez & Vernon L. Smith, *Hypothetical Valuations and Preference*

Overconfidence and over-optimism can be reduced greatly by training.[368] Furthermore, some occupations seem less prone to cognitive error than others, suggesting a role for expertise in reducing cognitive error. Auditors, for example, make fewer, and lesser, errors than laypeople.[369] Likewise, professional traders err less than do M.B.A. students in market simulations.[370] And weather forecasters are almost perfect Bayesians.[371]

Now for the bad news. Though learning can work, at least to some degree, it requires conditions that may not always come about outside the laboratory. First, learning requires accurate and rapid feedback, with enough potential gain to warrant using one's resources to learn.[372] Thus, the feedback should go

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Reversals in the Context of Asset Trading, *in* LABORATORY EXPERIMENTS IN ECONOMICS: SIX POINTS OF VIEW 131 (Alvin E. Roth ed., 1987); Charles L. Plott, *Rational Choice in Experimental Markets*, *in* RATIONAL CHOICE, *supra* note 234, at 117; Vernon L. Smith, *Rational Choice: The Contrast Between Economics and Psychology*, 99 J. POL. ECON. 877 (1991). *See generally* Camerer, *supra* note 228, at 675 (collecting studies).

368 *See, e.g.*, Baruch Fischhoff, *Debiasing*, *in* JUDGMENT, *supra* note 272, at 422, 434–35, 437–40.

369 *See* James F. Smith & Thomas Kida, *Heuristics and Biases: Expertise and Task Realism in Auditing*, 109 PSYCHOL. BULL. 472, 485–86 (1991). Auditors will, however, depart from the Bayesian ideal when faced with an audit task. *See* Stephen K. Asare & Arnold Wright, *Normative and Substantive Expertise in Multiple Hypotheses Evaluation*, 64 ORG. BEHAV. & HUM. DECISION PROCESSES 171, 176–78, 180 n.9 (1996). These Bayesian errors usually did not carry forward into actual substantive errors, though, suggesting that auditors have ways to correct internally for their probabilistic mistakes.

370 *See* Matthew J. Anderson & Shyam Sunder, *Professional Traders as Intuitive Bayesians*, 64 ORG. BEHAV. & HUM. DECISION PROCESSES 185 (1995); *cf.* John T. Hazer & Scott Highhouse, *Factors Influencing Managers' Reactions to Utility Analysis: Effects of* SD_y *Method, Information Frame, and Focal Intervention*, 82 J. APPLIED PSYCHOL. 104 (1997) (less knowledgeable managers showed framing effects, but more knowledgeable managers did not).

371 *See, e.g.*, Allan H. Murphy & Robert L. Winkler, *The Use of Credible Intervals in Temperature Forecasting: Some Experimental Results*, *in* DECISION MAKING AND CHANGE IN HUMAN AFFAIRS 45 (Helmut Jungermann & Gerard de Zeeuw eds., 1977); Allan H. Murphy & Robert L. Winkler, *Subjective Probability Forecasting Experiments in Meteorology: Some Preliminary Results*, 55 BULL. AM. METEOROLOGICAL SOC'Y 1206 (1974); *cf., e.g.*, Howard Garland et al., *De-Escalation of Commitment in Oil Exploration: When Sunk Costs and Negative Feedback Coincide*, 75 J. APPLIED PSYCHOL. 721 (1990) (petroleum geologists did not show sunk-cost fallacy predicted by prospect theory).

372 *See, e.g.*, Tversky & Kahneman, *supra* note 256, at 90–91; Sarah E. Bonner & Nancy Pennington, *Cognitive Processes and Knowledge as Determinants of Auditor Expertise*, 10 J. ACCT. LITIG. 1, 34–36 (1991); Hillel J. Einhorn & Robin M. Hogarth, *Confidence in Judgment: Persistence of the Illusion of Validity*, 85 PSYCHOL. REV. 395, 407–15 (1978).

beyond the mere result, extending into what should have happened or why the response was inappropriate.[373] In addition, the larger the financial gain or loss, the faster the learning.[374] This sort of feedback will not often be available in real markets for low-probability, high-magnitude risk. Defaults are relatively rare, so negative feedback will occur so infrequently for most market participants as to eliminate the value of learning.[375] Only high-volume traffickers in a given type of risk will get sufficient feedback to make learning possible.

In addition, learning does not always take place. Some cognitive errors resist feedback, just as some areas of purported expertise show little gain from experience.[376] For that matter, some types of errors are learned—for example,

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[373] *See, e.g.*, Bonner & Pennington, *supra* note 372; William Remus et al., *Does Feedback Improve the Accuracy of Recurrent Judgmental Forecasts?*, 66 ORG. BEHAV. & HUM. DECISION PROCESSES 22 (1996).

[374] *See, e.g.*, Bruno S. Frey & Reiner Eichenberger, *Economic Incentives Transform Psychological Anomalies*, 23 J. ECON. BEHAV. & ORG. 215, 225-26 (1994); Vernon L. Smith & James M. Walker, *Monetary Rewards and Decision Cost in Experimental Economics*, 31 ECON. INQUIRY 245 (1993). On the other hand, experiments do show that cognitive error exists even when real money rides on the quality of the cognition. *See, e.g.*, David M. Grether & Charles L. Plott, *Economic Theory of Choice and the Preference Reversal Phenomenon*, 69 AM. ECON. REV. 623 (1979); Werner W. Pommerehne et al., *Economic Theory of Choice and the Preference Reversal Phenomenon: A Reexamination*, 72 AM. ECON. REV. 569 (1982); David B. Wiseman & Irwin P. Levin, *Comparing Risky Decision Making Under Conditions of Real and Hypothetical Consequences*, 66 ORG. BEHAV. & HUM. DECISION PROCESSES 241 (1996).

[375] Excessive precaution should prove even harder to eradicate through learning, because one can never be certain whether a particular precaution was superfluous. Aggregate data might help, but these data will not usually be available and useful unless one has a relatively sophisticated financial system and suitable comparative information.

[376] A notable example of stubborn error is the "winner's curse," which is the tendency of bidders at auctions to overbid when they win, largely because of scattered errors in assessing value. *See, e.g.*, Richard Thaler, *The Winner's Curse*, *in* THE WINNER'S CURSE 50 (1992). This error resists feedback and experience. *See* Peter Foreman & J. Keith Murnighan, *Learning to Avoid the Winner's Curse*, 67 ORG. BEHAV. & HUM. DECISION PROCESSES 170 (1996). Psychological diagnosis is an instance of the dubious virtues of experience; some rather frightening studies showed little difference in accuracy among experienced psychologists, students, and briefly trained laypeople. *See* STUART OSKAMP, THE RELATIONSHIP OF CLINICAL EXPERIENCE AND TRAINING METHODS TO SEVERAL CRITERIA OF CLINICAL PREDICTION (Psychological Monographs No. 547, 1962); Lewis R. Goldberg, *The Effectiveness of Clinicians' Judgments: The Diagnosis of Organic Brain Damage from the Bender-Gestalt Test*, 23 J. CONSULTING PSYCHOL. 25 (1959). There is also some reason to doubt that there is much spillover from one type of learned error avoidance to another, though the studies conflict. *Compare* John H. Kagel & Dan Levin, *The Winner's Curse and Public*

risk-aversion for gains.[377] Others can be strengthened by learning—for example, regret-aversion.[378] Finally, satisficing may reinforce error through spurious feedback; if one sets modest goals, one can meet them by error-filled means.[379]

These general problems with learning, though interesting, generally do not affect our basic fact pattern.[380] More troubling are the relatively stringent conditions under which effective learning occurs. The purity of laboratory conditions can promote effective learning, but sordid reality can interfere with learning, especially through infrequent and cloudy feedback. Only those who deal in risk by the bushel basket should be expected to overcome cognitive error significantly, yet another element for courts to take into account as they weigh the merits of limiting consequential damages.

V. CONCLUSION

In short, then, excessive—or, in any event, large—consequential damages have long been a concern of contract lawyers and judges, who have addressed them through a range of legal rules. *Hadley* itself was an attempt to rein in juries, which at that time could hold defendants liable for the most unforeseeable consequential damages with only modest judicial oversight. Soon after *Hadley*, though, some courts sought means of limiting further potential liability for consequential damages, whether through the now-exploded tacit agreement test, through a narrow reading of *Hadley*, or through disproportionality limits on otherwise recoverable damages.

The current vogue for disproportionality is, as we have seen, difficult to explain using conventional default rule analysis, whether with problem-solving theory or information-forcing theory. The uncertainty that ordinarily attends disproportionality, at least in its modern attire, is itself a cost. Beyond the added uncertainty, though, disproportionality seems to undercut the basic principles of default theory, whether because it may deviate from the ideal bargain of most parties or because it discourages the disclosure of cost-reducing information. So

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Information in Common Value Auctions, 76 AM. ECON. REV. 894, 917 (1986) (no spillover), *with* Darrin R. Lehman et al., *The Effects of Graduate Training on Reasoning*, 43 AM. PSYCHOLOGIST 431 (1988) (spillover).

[377] *See* James G. March, *Learning to be Risk Averse*, 103 PSYCHOL. REV. 309 (1996).

[378] *See, e.g.*, Larrick & Boles, *supra* note 349, at 95; Zeelenberg et al., *supra* note 354, at 156–57.

[379] *See, e.g.*, Hillel J. Einhorn, *Learning from Experience and Suboptimal Rules in Decision Making*, *in* COGNITIVE PROCESSES, *supra* note 357, at 1, 6–7.

[380] Though learned regret avoidance may increase the extent of risk underpricing.

far, then, the modern trend toward disproportionality seems misguided at best.

But default theory is based, for the most part, on expected utility theory, which makes rather sweeping assumptions about how people deal with risk. These assumptions are empirically faulty; though there is still some question about their degree of fault, it seems great enough that we should look to behavioral decision theory to supplement our analysis. Though this body of disparate and at times divergent theories and observations does not speak with unanimity here, the great majority of the cognitive literature favors, at some level, limits on even foreseeable consequential damages. In general, the remote risks at play here will be undervalued by contracting parties, particularly those who seldom deal with these risks; as a result, they will make too small an allowance for them in the contract price, and thus will not compensate adequately the risk-bearing promisor.

This leaves two issues unresolved: when disproportionality analysis should be applied, and how a court should apply it. The first issue is easier to resolve. The strongest case for protecting the promisor from bearing foreseeable risk comes when the promisor deals infrequently with the sort of risk involved and when the risk is quite remote. The infrequency reduces the likelihood that learning will efface any cognitive biases; the remoteness of the risk increases the likelihood that the risk will be undervalued. Drab, rather than vivid, risks also will likely be undervalued. Further, one should consider whether the promisee has a better opportunity to assess the risk accurately than the promisor; though this will rarely be true, it would undercut any argument by the promisee that the promisor was better positioned to deal with the risk. Similarly, the promisee's frequency is germane; if the promisee deals infrequently with a given type of risk, but the promisor deals with it often, then the promisor is ill-positioned to complain that the promisee should have to shoulder the burden. The promisor is better able to assess the risk and allow for it, and also can more easily learn from its errors.

These factors—relative frequency, remoteness, availability, relative knowledge—do appear in a good many of the reported disproportionality cases.[381] In *International Ore*, for example, the court declined to relieve the promisor of an apparently disproportionate risk precisely because it dealt expertly and frequently in the field, which would allow it to assess its potential liability accurately and charge for it appropriately; furthermore, the sort of risk at issue here—negligent work—was obvious enough a peril that the promisor

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[381] *Cf.* Bradford Stone, *Recovery of Consequential Damages for Product Recall Expenditures*, 1980 BYU L. REV. 485, 535 (factors to consider when allocating risk for product recall include relative degree of fault, relative volumes of business, relative profit expectation).

should have guarded against it.[382] Similarly, in *Perini* the court found disproportionality inapt because the promisor was a seasoned general contractor, familiar with the vicissitudes of casino construction.[383] In contrast, the same court found potential disproportionality with a far lower ratio of damages to contract price, where the risk—liability under a state environmental protection statute—was legally uncertain and, given standard real estate practice, highly improbable.[384] The relative abilities of the parties also figured in *Postal Instant Press, Inc. v. Sealy*, where a franchisee's breach of a franchise agreement was found a good case for limiting consequential damages.[385]

Interestingly, though, one class of cases seems wholly wrong, following modern cognitive analysis—the common carrier and telegraph cases. There the promisor performs huge numbers of similar contract, and thus can accurately assess its risk of default and learn to overcome any lingering cognitive biases. A common carrier also is in a better position to know its default rate than is a customer.[386] Further, the promisor knows, at least nominally, of the magnitude of the risk, for the damages in question must already have passed the *Hadley* test. One properly trembles before suggesting that Cardozo was wrong, but *Kerr Steamship* seems almost a classic instance of when *not* to apply disproportionality.[387]

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[382] *See* International Ore & Fertilizer Corp. v. SGS Control Servs., Inc., 38 F.3d 1279, 1284–85 (2d Cir. 1994). It is thus difficult to defend the holding in *Vitol Trading S.A. v. SGS Control Services, Inc.*, 874 F.2d 76, 81–82 (2d Cir. 1989), in which, on very similar facts (and with the same defendant), the promisor was not held liable for consequential damages. Perhaps it should be pointed out that the portion of the opinion tying this result to disproportionality was not joined by the other judges on the panel, and thus is dictum. *See Vitol*, 874 F.2d at 82 (Feinberg, J., concurring), 82–83 (Pratt, J., concurring).

[383] *See* Perini Corp. v. Greate Bay Hotel & Casino, Inc., 610 A.2d 364, 380–82 (N.J. 1992).

[384] *See* Dixon Venture v. Joseph Dixon Crucible Co., 584 A.2d 797, 798–800 (N.J. 1991).

[385] *See* Postal Instant Press, Inc. v. Sealy, 51 Cal. Rptr. 2d 365, 371–75 (Ct. App. 1996).

[386] And, as we have seen, can often offer a separating menu of insurance options to place risk precisely.

[387] Another is *General Star Indemnity Co. v. Bankruptcy Estate of Lake Geneva Sugar Shack, Inc.*, 572 N.W.2d 881 (Wis. Ct. App. 1997), in which the court invoked disproportionality to absolve an *insurance company* from liability for consequential damages. If any business should be free of cognitive error in accessing risk, it should be an insurer—and insurance policies are *intended* to provide protection against low-probability, high-magnitude risk. One hopes that this decision is less a harbinger than, in Justice Frankfurter's evocative phrase, "a derelict on the waters of the law." Lambert v. California, 355 U.S. 225, 232 (1957) (Frankfurter, J., dissenting).

In principle, one could apply these factors to any consequential damages fact pattern, and find some respect in which the parties might not have allowed adequately for the risk shifted. Far from a rarity, then, disproportionality analysis would then become a routine part of consequential damages assessment. Though one is tempted to propose such a thing—think of the citations one could muster!—a moment's reflection suggests otherwise. The expectation measure of damages, after all, only nominally serves its purpose of putting the breached-against party where it would have been if the contract had been performed.[388] Expectation can overcompensate, as in some of the cost of completion cases[389] or the bad-faith breach of insurance contract cases.[390] Perhaps more often, it can undercompensate, given the want of attorney's fees and costs, the duty to mitigate, the general lack of damages for pain and suffering, the problems of proof for new businesses—and, of course, *Hadley* itself.[391] One could twiddle endlessly with the expectation measure to bring it closer to proper compensation, but at some point the costs—and the uncertainty—would prove overwhelming. In the realm of consequential damages, perhaps it is better to correct only gross error, focusing only on the relatively limited range of cases where a substantial risk was almost certainly not shifted far from the promisee. Disproportion is not the ideal way to get to this result; even a relatively modest risk can be subject to a wide range of cognitive error. Still, its focus on the combined risk and magnitude serves to winnow away minor errors, thus making more certain ex ante assessment of potential liability and aiding reliance and planning.

The second question—what to do if a risk proves disproportionate—is much thornier. The Restatement (Second) and the current draft of Article 2 of the U.C.C., after all, leave the task to the court with a minimum of guidance.[392] The modern cases applying disproportionality analysis have not

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[388] *See, e.g.*, RESTATEMENT (SECOND) OF CONTRACTS § 344(a) (1979).

[389] *See, e.g.*, Groves v. John Wunder Co., 286 N.W. 235 (Minn. 1939).

[390] In which punitive damages are not infrequently awarded. *See, e.g.*, STEVEN J. BURTON & ERIC G. ANDERSEN, CONTRACTUAL GOOD FAITH § 9.2 (1995).

[391] *See, e.g.*, Rockingham County v. Luten Bridge Co., 35 F.2d 301 (4th Cir. 1929) (duty to mitigate); Valentine v. General Am. Credit, Inc., 362 N.W.2d 628 (Mich. 1984) (no emotional distress damages). *See generally* John A. Sebert, Jr., *Punitive and Nonpecuniary Damages in Actions Based Upon Contract: Toward Achieving the Objective of Full Compensation*, 33 UCLA L. REV. 1565 (1986); Jeffrey Standen, *The Fallacy of Full Compensation*, 73 WASH. U. L.Q. 145 (1995).

[392] The Restatement (Second) itself merely states that the remedy may be limited as justice requires. *See* RESTATEMENT (SECOND) OF CONTRACTS § 351(3) (1979). According to the comment, this may entail denying recovery for lost profits or restricting recovery to the reliance measure. *See id.* at cmt. f. Additionally, in the American Law Institute's discussion

added much to the analysis; for the most part, they merely approve or deny consequential damages, rather than engage in any more nuanced allocation. This seems less than wholly satisfactory, at least to the extent that one craves certainty and predictability. The problem is complicated by the type of analysis that has brought us to a partial solution. If the question is framed as whether the risk was shifted, then a yes or no answer allows one either to put the whole risk on the promisor or the promisee. As the comment to the Restatement (Second) suggests, though, this dichotomy is false. Part of the risk may be shifted; part of the damages may be removed. As Professor Young observed, this provision calls, unusually in contract law, for half measures.[393]

But what is to guide a court as it decides how to reduce damages? The ideal answer might be to determine how much of the risk was shifted to the promisor, holding the promisor liable for only that percentage. This is a familiar idea from the law of contributory negligence, so a court would not have to carry out a wholly novel task. But, of course, in negligence juries determine the degree of contribution, subject to relatively modest judicial constraint. This troubles few; routine negligence cases deal with routine risks, so jurors can draw on their backgrounds to guide them to sensible results. In disproportionality cases, however, the context is quite different, and far less familiar. Perhaps Llewellyn's cherished merchant jurors could have determined risk allocation from their collective experiences, but one may doubt whether random draws from the venire would do as well.[394]

Of course, there is a way to determine the allocation precisely, at least in principle. One could determine what the risk of breach and the magnitude of the loss were at the time of contracting, which would provide the risk premium.

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of this provision, Professor Farnsworth, the reporter, suggested that it could also entail distinguishing between essential and incidental reliance, though he could think of no cases where this had happened. *See* 56 A.L.I. PROCEEDINGS 337–40 (1979).

[393] *See* Young, *supra* note 14, at 24–30; *see also, e.g.*, Comment, *Lost Profits as Contract Damages: Problems of Proof and Limitations on Recovery*, 65 YALE L.J. 992, 1021–24 (1956) (proposing that damages in disproportionality cases be split to allow for protecting expectation interest, compensating for losses caused by breach, reasonableness of the parties' conduct, risk of similar losses in the future, ability to spread risk, and undesirability of impeding future contracting). Sharing risk is more generally accepted, or at least contemplated, in the law of impracticability and frustration—themselves fields in which risk allocation is foremost, and errors motivate risk-shifting. *See, e.g.*, Sheldon W. Halpern, *Application of the Doctrine of Commercial Impracticability: Searching for "The Wisdom of Solomon"*, 135 U. PA. L. REV. 1123 (1987); A. Mitchell Polinsky, *Risk Sharing Through Breach of Contract Remedies*, 12 J. LEGAL STUD. 427 (1983); Philip D. Weiss, Comment, *Apportioning Loss After Discharge of a Burdensome Contract: A Statutory Solution*, 69 YALE L.J. 1054, 1075–89 (1960).

[394] On merchant juries, see, for example, Wiseman, *supra* note 259.

This ideal risk premium could then be compared with the actual risk premium. If the actual risk premium were, say, seventy percent of the ideal risk premium, then the promisor would be liable for only seventy percent of the consequential damages for that risk. In essence, the promisor would bear as much of the risk as it was paid to bear, and no more.

This approach would work, were the data available. Unfortunately, they probably would not be, at least not with any accuracy. The risk of breach might be easy to determine for, say, a common carrier, where millions of transactions would yield a fairly predictable default rate. For less frequent transactions, though, the likelihood of the risk would largely be guesswork. The magnitude of damage would be easier to determine, as that normally should differ little from the actual damages proved.[395] The accuracy of the ideal risk premium thus would depend mainly on the accuracy of the measured risk. These uncertainties pale, though, when compared with the uncertainties that attend measuring the actual risk premium. Possibly the promisor had purchased liability insurance that would cover these claims, and could determine from its accounting records how much of the cost of this insurance was allocated to the contract in question. More likely, though, such costs would be lumped together with others, whether through a general overhead allowance or the like, and would be quite difficult to parse out. Nor could one get to the actual risk premium by subtracting everything else; that everything includes profit and other hard-to-determine items. Moreover, the risk allowance for a contract should ordinarily be a very small percentage of the contract price, the odd contract to juggle chainsaws aside, so the effect of even a small error on the larger items could be very great.

Nor do other approaches to risk allocation seem more promising. Though some writers on impracticability have advocated loss sharing, seldom have they proceeded beyond advocacy to standards.[396] Another possible analogy is gain sharing in corporate mergers between controlling shareholders and minority shareholders, for which Professors Brudney and Chirelstein have proposed allocating gain according to the relative percentage of pre-merger values.[397]

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[395] In any event, the second part of *Hadley* requires notice of unusual risk; though this notice need not come with a price tag, it should delimit the damages fairly well.

[396] *See, e.g.*, John E. Coons, *Approaches to Court Imposed Compromise—The Uses of Doubt and Reason*, 58 NW. U. L. REV. 750 (1964); Halpern, *supra* note 393; Jeffrey L. Harrison, *A Case for Loss Sharing*, 56 S. CAL. L. REV. 573 (1983). It is fair to say that this sort of ex post readjustment is not universally popular. *See, e.g.*, John P. Dawson, *Judicial Revision of Frustrated Contracts: The United States*, 64 B.U. L. REV. 1 (1984).

[397] *See* Victor Brudney & Marvin A. Chirelstein, *Fair Shares in Corporate Mergers and Takeovers*, 88 HARV. L. REV. 297, 318–25 (1974). I am indebted to Barbara Banoff for this observation.

The analogy is appealing; after all, one of the definitions of a firm is based on internalizing the gains from contracting.[398] But what is each side's stake in a contract? The expected value? The investment that makes performance possible? The assets of the promisor and promisee? Here the analogy weakens, perhaps fatally; in any event, it is hard to press this promising analogy very far.

So there is no wholly satisfactory way to apportion the risk ex post. Though the methods above should work well enough in vitro, they would run into a good many problems in vivo. Perhaps, then, the best result is to head back to the finder of fact. True, commercial disputes may not be natural jury-fodder. But counsel will still want to provide as much credible evidence on risk allocation as possible, and the judge can instruct the jury to determine how the parties actually allocated the risk (perhaps taking the method outlined above as a template). Furthermore, the factors that should be used to determine whether the risk should be borne by the promisor are relevant as well to determine just how much of it should be borne. We might properly despair of calculating the allocation precisely, but so too might we despair of risk allocation in a host of other contexts.[399] *Eppur si muove.*

In sum, this Article's approach will not settle exactly where low-probability, high-magnitude risks should fall, and to what extent. No more, of course, does any other approach. The approach suggested here, though, conforms with cognitive reality (and with default theory as well, appropriately modified), and gives guidance where guidance was lacking. Perhaps, then, it can make more predictable a capricious area, and bring a measure of certainty—and thus a more rational amount of planning—to the uncertain world of disproportionate consequential damages.[400]

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[398] *See, e.g.*, WILLIAMSON, *supra* note 178.

[399] For instance, in CERCLA contribution actions, actions against multiple tortfeasors, and the like. *Cf.* Lewis A. Kornhauser & Richard L. Revesz, *Settlements Under Joint and Several Liability*, 68 N.Y.U. L. REV. 427 (1993).

[400] And, of course, the revision of Article 2 could further roil the waters if it merely adopts the language of the Restatement (Second); after all, though most jurisdictions have not yet adopted disproportionality, all, save Louisiana, have adopted Article 2 of the U.C.C., and might be expected to adopt the revision. Perhaps the comments will give further guidance to courts not hitherto troubled with this question.